The State Agricultural College

Fort Collins, Colorado

Nineteenth Annual Catalogue

~~1897-1898~~

1895-99

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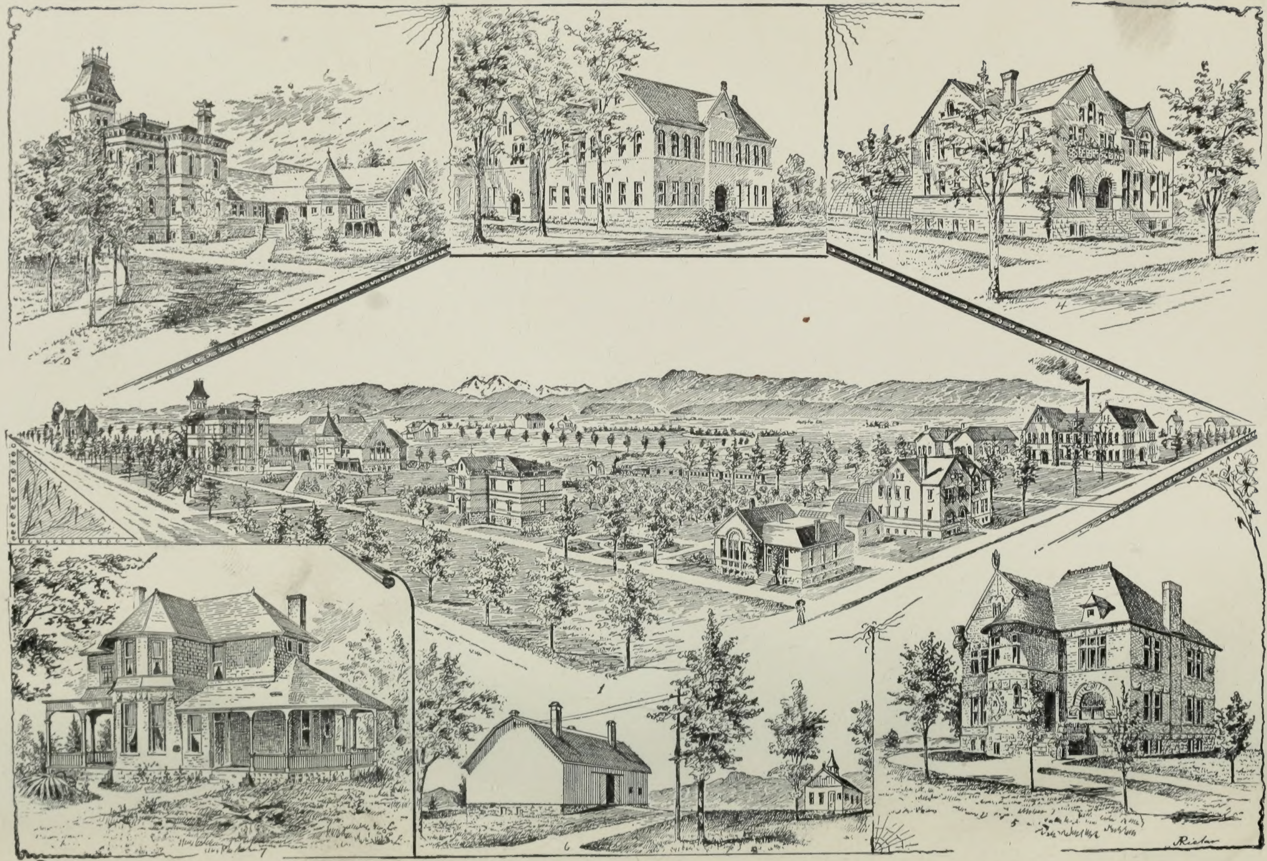

THE GROUNDS AND BUILDINGS OF THE STATE AGRICULTURAL COLLEGE, FORT COLLINS, COLORADO.

REGISTER

OF THE

OFFICERS AND STUDENTS

OF

The State Agricultural College

FORT COLLINS, COLORADO

* * *

Courses of Study
and General Information

1895-1896

* * *

Published by The State Agricultural College
Fort Collins, Colorado
1896

The Smith-Brooks Printing Co.,
Denver, Colo.
1896.

THE STATE BOARD OF AGRICULTURE.

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FORT COLLINS, COLORADO

⁂

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THE STATE BOARD OF AGRICULTURE.

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CARL F. BAKER, B. S.	Entomologist

Sub-Stations

PHILO K. BLINN, B. S. Arkansas Valley Experiment Station, Rocky Ford, Colo.	Superintendent
CHAS. A. DUNCAN, B. S. San Luis Valley Experiment Station, Monte Vista, Colo.	Superintendent
JAMES E. PAYNE, M. S. Rain-Belt Experiment Station, Cheyenne Wells, Colo.	Superintendent

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Professor of Civil and Irrigation Engineering.

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Professor of Botany and Horticulture.

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Professor of Zoology and Entomology.

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Professor of English and Sociology.

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Professor of Military Science and Tactics.

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⁂

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Instructor in Vocal Music.

CORYDON A. WOODY, B. S.,
Instructor in English and Mathematics.

LATHROP M. TAYLOR, B. S.,
Stenographer, President's Office.

MARGUERITE E. STRATTON, B. S.,
Librarian.

⁂

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CARL F. BAKER, B. S., *Zoology and Entomology.*
CHARLES J. RYAN, *Chemistry.*
JACOB H. COWEN, B. S., *Horticulture.*
ROBERT E. TRIMBLE, B. S., *Meteorology.*
WILLIAM F. GILKISON, B. S., *Forge Room.*
WILLIAM GARBE, *Foundry Room.*

REGISTER OF STUDENTS
AND
GRADUATES.

REGISTER OF STUDENTS.

1895-1896.*

POST-GRADUATES.

Edith Gertrude Boothroyd, B. S., '95..........Arkins, Colorado
Ella Gertrude Goldsborough, B. S., '95....Fort Collins, Colorado
Minnie Effie McLain, B. S., '91..........Fort Collins, Colorado

SENIOR CLASS.

Fred Alford..............................Fort Collins, Colorado
Henry Franklin Alps.......................Loveland, Colorado
William Erastus Becker....................Dowagiac, Michigan
Florence Jessie Boothroyd...................Arkins, Colorado
Alfred Hiram Bungardt................Kansas City, Missouri
Allen Percy Greenacre.................Fort Collins, Colorado
Robinson Wilber Hawley...............Fort Collins, Colorado
John Edward Kiteley.....................Longmont, Colorado
Richard Appleton Maxfield.......................Rifle, Colorado
Abner Sherman McKee......................Paonia, Colorado
Grafton St. Clair Norman.....................Hamilton, Ohio
Robert Winfred Sears....................Greenhorn, Colorado

JUNIOR CLASS.

Mabel Carrie Blinn.........................Berthoud, Colorado
May Anna Dievendorf...................Buena Vista, Colorado
Bertram Alden Gage.....................Fort Collins, Colorado
Martha Rose Gilkison....................Fort Collins, Colorado
Robert Secrest Gray.....................Wheatland, Wyoming

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*This record is made prior to the close of the Spring term. The results of the term's work may change the classification somewhat.

Archie Jesse Harris	Fort Collins, Colorado
Ralph Henry Hess	Fort Collins, Colorado
William Ashton Hilton	Fort Collins, Colorado
Herman Howard	Greeley, Colorado
Alta Esther Lewis	Timnath, Colorado
Smith Durie Philip	Fort Lupton, Colorado
Anna Laura Picken	Fort Collins, Colorado
Mary Elizabeth Prendergast	Fort Collins, Colorado
David John Richards	Salida, Colorado
Emma Sykes Stover	Fort Collins, Colorado
Robert Newton Underwood	Hotchkiss, Colorado

SOPHOMORE CLASS.

Emil Affolter	Longmont, Colorado
Claude Harold Annis	Fort Collins, Colorado
Philip Henry Boothroyd	Arkins, Colorado
Herman Overton Brown	Salida, Colorado
Richard Turner Calkins	Harris, Colorado
Raymond Clinton Calloway	Livermore, Colorado
Frank Corbin	Fort Collins, Colorado
William Arnett Dickens	Longmont, Colorado
Percy Golding-Dwyre	Fort Collins, Colorado
Grace Farrar	Fort Collins, Colorado
William Franklin Godsmark	Sulphur Springs, Colorado
Jesse Walter Goodwin	Loveland, Colorado
William Leo Guthrie	Rocky Ford, Colorado
Elmer Louis Hahn	New Windsor, Colorado
Harry George Hammond	Fort Collins, Colorado
Fred Steck Hotchkiss	Hotchkiss, Colorado
Amos Jones	Anaconda, Colorado
Arthur Howard King	Sterling, Colorado
Adolph Frederick Lindon	Bryant, Colorado
James Mifflin Loud	Fort Robinson, Nebraska
Charles William Mayers	Littleton, Colorado
Andrew Macfarlane	Hebron, Colorado
Robert Lee McConnell	La Veta, Colorado
Bernard Joseph Prendergast	Fort Collins, Colorado
Olin Grafton Reed	Fort Collins, Colorado
Linnie May Rutledge	Timnath, Colorado
Alice Ethleen Silcott	Fort Collins, Colorado
Charles Edward Swann	Delta, Colorado
Rennie Simpson True	Highland Lake, Colorado
Lulu Viets	Grand Junction, Colorado

Thomas Jefferson Warren	Fort Collins, Colorado
Hoyt Douglas Whipple	Berthoud, Colorado
Melvin Demertus Williams	Glenwood Springs, Colorado
Frank Thurston Woods	Fort Collins, Colorado
George Robert Young	Sterling, Colorado
Floyd Stephens Youtsey	Fort Collins, Colorado

FRESHMAN CLASS AND IRREGULARS.

Lore Edward Alford	Fort Collins, Colorado
Dora Allam	New Windsor, Colorado
Clifford Spencer Atherly	Fort Collins, Colorado
Ray Jasper Baker	Fort Collins, Colorado
Frank Bear	Salida, Colorado
Aaron Vanderburgh Benson	Loveland, Colorado
John Morris Bernheim	Fort Collins, Colorado
Frederick William Brose	Fort Collins, Colorado
Carl Sperry Bungardt	Kansas City, Missouri
Augusta Mary Bush	Fort Collins, Colorado
William Albert Cloud	New Windsor, Colorado
Maggie Leon Buttorff	Fort Collins, Colorado
Eva May Daugherty	Fort Collins, Colorado
Ralph Bernard DeMasters	Cripple Creek, Colorado
Clarence Orie Doolittle	Fort Collins, Colorado
Francis Henry Droney	Salida, Colorado
Dudley Golding-Dwyre	Fort Collins, Colorado
Ralph Richard Englebeck	Denver, Colorado
James Elliott	Timnath, Colorado
James Lindsey Foote	Loveland, Colorado
Raymond Ranney Fisk	Fort Collins, Colorado
Minnie Ann Gates	Butler, Colorado
Florence Alice Goodwin	Loveland, Colorado
Frank Byron Goodwin	Loveland, Colorado
Charles Haff	Fort Morgan, Colorado
Lewis Clifford Hall	Canon City, Colorado
Elmer Albertus Hankins	Loveland, Colorado
Frank Milton Harris	Chicago, Illinois
Agnes Louise Hawley	Fort Collins, Colorado
Walter Arthur Hawthorne	Salida, Colorado
Clairette Ella Herner	Fort Collins, Colorado
Mabel Herner	Fort Collins, Colorado
Ada Belle Hershman	Loveland, Colorado
Lillie May Hoffman	Superior, Nebraska
Joseph Clinton Holtschneider	Buena Vista, Colorado

Jacob Edwards Horner	Fort Collins, Colorado
George Arthur Hotchkiss	Colona, Colorado
Charles Mantz Hottel	Fort Collins, Colorado
Minerva Huberty	Fort Collins, Colorado
Walter Patrick Hurley	Buena Vista, Colorado
Arthur Delzell Jackson	Sterling, Colorado
William Harrison Kelso	Beavercreek, Colorado
George Franklin Kern	New Windsor, Colorado
Emma Elizabeth Kern	New Windsor, Colorado
Benjamin William Lamb	Fort Collins, Colorado
Ida Martha Lambert	Fort Collins, Colorado
Stephen Goodwin Lewis	Timnath, Colorado
Ada Livernash	Fort Collins, Colorado
Jasper Loomis	Fort Collins, Colorado
Otto Wesley Lunnon	San Francisco, California
Simon Moses Marks	Buena Vista, Colorado
Newton Webster Matthews	Longmont, Colorado
Arthur William McCain	Fort Collins, Colorado
Walter Willis McCain	Fort Collins, Colorado
Francis Virgil LeRoy McCandless	Florence, Colorado
John Logie McPherson	Fort Collins, Colorado
Flora McPherson	Fort Collins, Colorado
Harry Glenn Meredith	Rye, Colorado
Helene Henriette Michaud	Fort Collins, Colorado
Marie Clara Michaud	Fort Collins, Colorado
Lily May Miller	Fort Collins, Colorado
Belle Morrison	Fort Collins, Colorado
Charles Sterling Newell	Berthoud, Colorado
Signe Agneta Norgaard	Gypsum, Colorado
Thorwald Vifold Norgaard	Gypsum, Colorado
Clarence Fraser Osborn	Loveland, Colorado
Ernest Leonard Pell	Niwot, Colorado
Charles Elmer Peterson	Timnath, Colorado
Frank Richmond Piatt	Fort Collins, Colorado
Marguerite Prendergast	Fort Collins, Colorado
Albert Thomas Price	Cheyenne, Wyoming
Lewis Franklin Rader	Canon City, Colorado
Albert Henry Ralph	Fort Collins, Colorado
James Henry Redmond	Leadville, Colorado
Rolan Burch Revel	Buena Vista, Colorado
John Thomas Richards	Erie, Colorado
Alfred Heartley Ripley	Eldred, Colorado
Mabel Roberts	Sterling, Colorado
William Leonard Ryan	Fort Collins, Colorado

Fred LaRue Seaman	Axtell, Kansas
David Severance	Greeley, Colorado
Gwendolen Silcott	Fort Collins, Colorado
Ralph Jefferson Stephenson	Fort Collins, Colorado
Ross Courtney Stephenson	Fort Collins, Colorado
Lura Elizabeth Strever	Berthoud, Colorado
William J. Strever	Berthoud, Colorado
Charles Dell Strever	Berthoud, Colorado
James Albert Stump	Canon City, Colorado
Henry William Suiter	Fort Collins, Colorado
Elizabeth Frances Sullivan	Salida, Colorado
Mary Ellen Sweeney	Fort Collins, Colorado
Hiram Hubert Tannar	Fort Collins, Colorado
Earl Levi Tedmon	Saint Cloud, Colorado
Arthur M. Tempany	Fort Robinson, Nebraska
Mary J. Thomas	Salida, Colorado
John Patrick Thomson	New Windsor, Colorado
Clay Charles Wintersteen	Greeley, Colorado
Cline Hugh Witteman	Axial, Colorado
William George Wixson	Alamosa, Colorado
Joseph Harris Woods	Fort Collins, Colorado
James Mayo Young	Rocky Ford, Colorado

PREPARATORY CLASS.

Charles Ludvic Arnell	Alamosa, Colorado
Leroy Arnold Baker	Fort Collins, Colorado
Frank Wade Bowman	Denver, Colorado
La Veta Branson	Loveland, Colorado
William Henry Brooks	Laporte, Colorado
Leonard Joseph Butler	Salida, Colorado
Pearl Almara Burnett	Fort Collins, Colorado
Maude Carrita Cates	Tie Siding, Wyoming
Edwin William Cotes	Grand Junction, Colorado
George Noble Crylie	Salida, Colorado
May Agatha Deaver	Fort Collins, Colorado
Harry Downing	Salida, Colorado
Grace Elliott	Timnath, Colorado
William Martin Golden	Fort Collins, Colorado
Bertha Hankins	Loveland, Colorado
Adam David Hankins	Loveland, Colorado
Altie May Harrington	Fort Collins, Colorado
Alfred Hathaway	Salida, Colorado
Clara M. Hershman	Loveland, Colorado

Curtis Thomas Hilliard	Fort Collins, Colorado
Edgar Alvinza Hotchkiss	Colona, Colorado
George Barron Hotchkiss	Fort Morgan, Colorado
Horace Owen Hunter	Loveland, Colorado
John Johnson	Estes Park, Colorado
Preston King	Toponas, Colorado
Frances Amanda Leonard	Fort Collins, Colorado
Jessie Josephine Loomis	Fort Collins, Colorado
Charles Wesley Lucas	Florence, Colorado
Daisy Matthews	Longmont, Colorado
Anna Elizabeth McConnaughey	Hebron, Colorado
Henry Harper Curtis McInroy	Littleton, Colorado
William Ernest Michaud	Laporte, Colorado
David Fleming Moloney	Saint Louis, Missouri
Murdoch Grant Nelson	Fort Collins, Colorado
Hjalmar Willard Norgaard	Gypsum, Colorado
Neils Epperson Norgaard	Gypsum, Colorado
Julius Peter Oleson	Gypsum, Colorado
Eva Patterson	Fort Collins, Colorado
Elizabeth Pattison	Minden, Nebraska
Samuel Ralph Piatt	Fort Collins, Colorado
Wilbur Jason Roberts	Loveland, Colorado
Dwight Mallory Root	Denver, Colorado
Thomas Bailey Scotland	Denver, Colorado
Amanda Sibley	Canon City, Colorado
Clarence Eastman Stratton	Salida, Colorado
Henry Fulton Sturdevant	Walden, Colorado
Lillie May Thomas	Fort Collins, Colorado
William Albert Thomas	Fort Collins, Colorado
Ralph Benjamin Van Leuven	Arapahoe, Nebraska
Christina White	Henry, Colorado
Stormont Earle Wilson	Wolcott, Colorado
Emma Grace Wise	Canfield, Colorado

SPECIAL STUDENTS.

Edgar Carlos Beach	Fort Collins, Colorado
Edith Grace Burns	Denver, Colorado
Ella Avery Mead	Greeley, Colorado
Nellie Gay Ramer	Fort Collins, Colorado
Margaret Robinson	Fort Collins, Colorado
John Lawrence Rugh	Fort Collins, Colorado
Mildred Grace Seckner	Fort Collins, Colorado
Mattie Newcomb Shoemaker	Denver, Colorado

Maude Belle Shorno	Kalamazoo, Michigan
Jessie Stephenson	Fort Collins, Colorado
Edith Clare Walter	Fort Collins, Colorado
Jane R. Whetstone	Denver, Colorado

SUMMARY.

	Male.	*Female.*	*Total.*
Post-Graduates	0	3	3
Seniors	11	1	12
Juniors	9	7	16
Sophomores	32	4	36
Freshmen and Irregulars	73	28	101
Preparatory	34	18	52
Special Students	2	10	12
Totals	161	71	232

The students represent nine states, as follows: California, 1; Colorado, 215; Illinois, 1; Kansas, 1; Michigan, 2; Missouri, 3; Nebraska, 5; Ohio, 1; and Wyoming, 3. Total, 232.

The Colorado students represent counties, as follows: Arapahoe, 10; Boulder, 3; Chaffee, 17; Conejos, 3; Delta, 4; El Paso, 2; Eagle, 6; Fremont, 8; Garfield, 2; Grand, 1; Huerfano, 1; Lake, 1; Larimer, 128; Logan, 4; Mesa, 2; Morgan, 2; Ouray, 2; Otero, 2; Phillips, 1; Pueblo, 2; Routt, 2; and Weld, 12. Total, 215.

GRADUATES.

1884.

George H. Glover, B. S., D. V. M., Veterinary Surgeon ....Longmont, Colorado

Elizabeth Lawrence, B. S., *nee* Coy, at Home............ ....Fort Collins, Colorado

Leonidas Loomis, B. S., Stockman........Fort Collins, Colorado

1885.

Cora B. Blinn, B. S., Stenographer....Charlotte, North Carolina

Edna L. Hice, B. S., Teacher............Fort Collins, Colorado

Lelia L. Robertson, B. S., *nee* Loomis, at Home............ ....Fort Collins, Colorado

Grace Espy Patton, B. S., Professor of English and Sociology, State Agricultural College......Fort Collins, Colorado

Robert E. Trimble, B. S., Assistant Meteorologist, State Agricultural College....................Fort Collins, Colorado

Helen Rigden, B. S., *nee* White, at Home..Fort Collins, Colorado

1886.

Wilbert J. Sickman, B. S., Clerk of the District Court...... ....Fort Collins, Colorado

1887.

Eleanor F. Gill, B. S., at Home...........Fort Collins, Colorado

Marguerite E. Stratton, B. S., Librarian, State Agricultural College............................Fort Collins, Colorado

Lerah S. McHugh, B. S., *nee* Stratton, at Home............ ....Fort Collins, Colorado

Edwin G. Nettleton, B. S., Merchant and Engineer..Nampa, Idaho

1888.

Lewis A. Coffin, B. S., Farmer................Boise City, Idaho

Harvey H. Griffin, B. S., Superintendent Experiment Station.................................Aztec, New Mexico

Josephine Lee, B. S., Teacher City Schools....Boulder, Colorado

Genevieve E. McLain, B. S., Teacher State Normal School ....Peru, Nebraska

1889.

Lucy Benson, B. S., *nee* Bell, at Home........Loveland, Colorado

Arthur L. Davis, B. S., M. D., Physician......Denver, Colorado

1890.

Clarence V. Benson, B. S., LL. B., Cashier Bank of Loveland...................................Loveland, Colorado

Velma V. Beebe, B. S., *nee* Benson, at Home..Loveland, Colorado

Burt C. Buffum, M. S., Professor of Agriculture and Horticulture, State University..............Laramie, Wyoming

Charles A. Duncan, B. S., Superintendent San Luis Valley Experiment Station.................Monte Vista, Colorado

Newton C. Garbutt, B. S., Attorney-at-Law................ ....Fort Collins, Colorado

Helen E. Lunn, B. S., Book-Keeper.......Fort Collins, Colorado

Harry R. Temple, B. S., Merchant and Engineer.......... ....Boulder, Colorado

Cora B. Thoman, B. S., Teacher City Schools. Loveland, Colorado

Mary L. Weaver, B. S., B. Ph., at Home..........Urbana, Ohio

1891.

Charles R. Evans, B. S., Merchant........Fort Collins, Colorado

Minnie E. McLain, B. S., Post-Graduate Student.......... ....Fort Collins, Colorado

John S. Calkins, B. S., Farmer................Harris, Colorado

1892.

Charles W. Beach, B. S., C. E., Surveyor and Engineer.... ....Victor, Colorado

Frank Beach, M. S., Superintendent Experiment Station... ....Las Vegas, New Mexico

Alice Bell, B. S., Stenographer and Teacher................ ....Fort Collins, Colorado

Samuel Bell, B. S., M. D., Physician...........Denver, Colorado

Don A. Carpenter, B. S., Manager National Pump Co....... ....Denver, Colorado

Porter J. Preston, B. S., Engineer of Canals and Reservoirs of the Pawnee Pass Company......Fort Morgan, Colorado

Albert J. Sedgwick, B. S., Editor, "The Leader".......... ....New Windsor, Colorado

Lewis L. Stimson, B. S., Surveyor of Weld County, City Engineer...................................Greeley, Colorado

Frank H. Thompson, B. S., City Editor "The Express".... ....Fort Collins, Colorado

1893.

John Bloomfield, B. S., Superintendent and Manager Phyllis Canal.................................Nampa, Idaho

Samuel Boothroyd, B. S., Professor of Mathematics and Physics, Mount Morris College.....Mount Morris, Illinois

Charles J. Gilkison, B. S., Farmer.......Fort Collins, Colorado

* Ida M. Douglas, B. S., *nee* Lewis..........Timnath, Colorado

William J. Ralph, B. S., Deputy Postmaster...Fort Collins, Colorado

Raymond F. Walter, B. S., Surveyor and Engineer...Greeley, Colorado

William W. Willard, B. S., Surveyor and Engineer...Phoenix, Arizona

1894.

Philo K. Blinn, B. S., Superintendent Arkansas Valley Experiment Station....................Rocky Ford, Colorado

Jacob H. Cowen, B. S., Assistant Botanist and Horticulturist, State Agricultural College.......Fort Collins, Colorado

Will H. Fairfield, B. S., Assistant Farm Superintendent, State University.......................Laramie, Wyoming

Minnie F. Harrington, B. S., Teacher....Fort Collins, Colorado

Herbert S. Kendall, B. S., Superintendent Experiment Station.................................Lander, Wyoming

Celia May Beach, B. S., *nee* Southworth, at Home...Las Vegas, New Mexico

Harlan Thomas, B. S., Architect.............Denver, Colorado

1895.

Jean B. Balcomb, B. S., Surveyor and Engineer...Pemberton, Colorado

Herbert A. Black, B. S., Merchant........Fort Collins, Colorado

Edith G. Boothroyd, B. S., Post-Graduate Student...Fort Collins, Colorado

Henry A. Calkins, B. S., Assistant Engineer, Mollie Gibson Mine..Aspen, Colorado

Edward P. Cooke, B. S., Colorado Agent, Matthews-Northup Company..................Fort Collins, Colorado

Loren B. Curtis, B. S., Surveyor and Engineer..Pemberton, Colorado

William F. Gilkison, B. S., Assistant Mechanical Engineering, State Agricultural College......Fort Collins, Colorado

Ella G. Goldsborough, B. S., Stenographer. .Fort Collins, Colorado

Seth C. Lewis, B. S., Farmer...........Fort Collins, Colorado

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* *Deceased.*

Edgar A. Mead, B. S., Farmer................Greeley, Colorado
George W. Nelson, B. S., Student, Central Business College...................................Denver, Colorado
Frances C. Schelt, B. S., Teacher.........Fort Collins, Colorado
Walter K. Starbird, B. S., Surveyor and Engineer.......................................Denver, Colorado

ALUMNI ASSOCIATION.

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Vice-President	Lelia L. Robertson
Secretary	Celia May Beach
Treasurer	Raymond F. Walter

EXECUTIVE COMMITTEE.

President, Vice-President, Secretary,
Frank Beach, George W. Nelson.

COURSES OF STUDY.

The outlines here given do not show the course of the Commercial College; that is outlined elsewhere in the catalogue. Consult the "Table of Contents."

PREPARATORY YEAR.

FIRST TERM.

American Prose	Swinton
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

SECOND TERM.

English Prose	Swinton
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

THIRD TERM.

American and English Verse	Selections
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

Military Drill and Physical Culture daily.

SUB-FRESHMAN YEAR.

FIRST TERM.

Mental Arithmetic	Stoddard
United States History	Montgomery
American Men of Letters	Selections

Freehand Drawing.

Afternoons: Farm.
Domestic Economy.

SECOND TERM.

Algebra	Olney
United States History	Montgomery
English Men of Letters	Selections

Freehand Drawing.

Afternoons: Shop.
Domestic Economy.

THIRD TERM.

Algebra	Olney
United States History	Montgomery
Civil Government	Townsend

Freehand Drawing.

Afternoons: Garden.
Domestic Economy.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work and selected reading in the College Library are required.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.

All lead to the degree of Bachelor of Science.

FRESHMAN YEAR.

FIRST TERM.

Geometry	Meyers
Agriculture	Gulley
Botany	Gray
General History	Sheldon

Afternoons: Garden, A., C.
Domestic Economy, L.
Shop, M.

SECOND TERM.

Geometry	Beman and Smith
Carpentry and Joinery	Goss
Composition and Rhetoric	Lockwood
General History	Sheldon

Afternoons: Shop, A., C., M.
Domestic Economy, L.

THIRD TERM.

Solid Geometry	Beman and Smith
Botany	Gray
Literature	Kellogg

Mechanical Drawing.

Afternoons: Farm, A., C.
Domestic Economy, L.
Shop, M.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work two afternoons and readings from American Men of Letters and American Orators three afternoons per week.

SOPHOMORE YEAR.

FIRST TERM.

Algebra	Olney
Rhetoric	Genung
Physiology	Martin

Mechanical Drawing.

Afternoons: Shop, A., C., M.
Domestic Economy, L.

SECOND TERM.

Trigonometry	Wentworth
Physiology	Martin
Physics	Deschanel
Farm Buildings, A	Lectures
Household Hygiene, L	Public Health Essays
Descriptive Geometry, C., M	Meyers

Afternoons: Physiological Laboratory, ½.
Physical Laboratory, ½.

THIRD TERM.

Physics	Deschanel
Surveying, A., C., M	Hodgman
Domestic Economy, L	Lectures
Stock Breeding, A	Warfield
Algebra, C. M	Taylor
Stenography and Typewriting, L	Scott-Browne
Ethics, A., L	Lectures
Descriptive Geometry, C., M	Meyers

Afternoons: Surveying, A., C., M., ½.
Dairying, L., ½.
Physical Laboratory, A., C., M., L., ½.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work for all students one hour per week; readings from English Men of Letters one hour per week.

AGRICULTURAL COURSE.

JUNIOR YEAR—FIRST TERM.

Stock Feeding	Stewart
Horticulture	Lectures
Physics	Deschanel
Landscape Gardening, ½; Meteorology, ½	Lectures

Afternoons: Physical Laboratory, 3-5.
Afternoons: Horticultural Laboratory, 2-5.

SECOND TERM.

Physiological Botany	Strasburger
Economic Geology	Shaler
Zoology	Orton

Zoological Laboratory.
Afternoons: Botanical Laboratory.

THIRD TERM.

Recent History	McCarthy and Library
Entomology	Packard and Lectures
Systematic Geology	Dana
Irrigation Hydraulics	Lectures

Afternoons: Entomological Laboratory, 2-5.
Afternoons: Farm, 3-5.

Military Drill daily. Rhetorical work one hour per week throughout the course.

AGRICULTURAL COURSE.

SENIOR YEAR—FIRST TERM.

Chemistry	Remsen
Dairying	Gurler
Psychology	Hill
Constitution of the United States	Andrews

Afternoons: Dairying, 2-5.
Chemical Laboratory, 3-5.

SECOND TERM.

Chemistry	Remsen
Horticulture	Lectures
Agriculture	Lectures
Logic	Gregory

Afternoons: Chemical Laboratory.

THIRD TERM.

Agricultural Chemistry	Johnston—Aikman
Political Economy	Walker
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Chemical Laboratory, ½.
Garden, ½.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Foundry Practice	West
Logic	Gregory
Physics	Deschanel
Higher Algebra	Taylor

Afternoons: { Physical Laboratory, 3-5.
Shop, 2-5.

SECOND TERM.

Boilers and Steam Engine	Wilson—Holmes
Economic Geology	Shaler
Analytic Geometry	Wentworth
Drawing	Instrumental

Afternoons: Shop.

THIRD TERM.

Drawing	Instrumental
Calculus	Taylor
Elements of Mechanism	Stahl and Woods
Workshop Appliances	Shelley—Rose

Afternoons: Shop.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Drawing	Instrumental
Calculus	Taylor
Chemistry	Remsen
Psychology	Hill

Afternoons: Shop, 2-5.
Chemical Laboratory, 3-5.

SECOND TERM.

Chemistry	Remsen
Drawing	Instrumental
Strength of Materials	Merriman
Transmission of Power	Lectures

Afternoons: Chemical Laboratory, 3-5.
Testing Materials, 2-5.

THIRD TERM.

Steam Engineering	Lectures
Special Machines	Lectures
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Steam Engineering Laboratory.

Military Drill daily. Rhetorical work one hour per week throughout the course

CIVIL AND IRRIGATION ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Irrigation Engineering	Wilson and Flynn
Physics	Deschanel
Higher Algebra	Taylor
Horticulture	Lectures

Afternoons: Physical Laboratory, 3-5.
Horticulture, 2-5.

SECOND TERM.

Higher Surveying	Johnson
Analytic Geometry	Wentworth
Economic Geology	Shaler
Drawing	Instrumental

Afternoons: Field and Laboratory work in Engineering.

THIRD TERM.

Irrigation Hydraulics	Lectures
Calculus	Taylor

Map and Topographical Drawing.
Afternoons: Field Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Calculus	Taylor
Chemistry	Remsen
Constitution of the United States	Andrews
Reservoirs and Dams, ½	Lectures
Meteorology, ½	Lectures

Afternoons: Engineering, 2-5.
Chemical Laboratory, 3-5.

SECOND TERM.

Chemistry	Remsen
Materials of Engineering	Thurston
Logic	Gregory
Drawing	Instrumental

Afternoons: Chemical Laboratory, 3-5.
Testing of Materials, 2-5.

THIRD TERM.

Hydraulics	Lectures
Trusses and Bridges	Merriman
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

LADIES' COURSE.

JUNIOR YEAR—FIRST TERM.

Domestic Economy, Chemistry of Cooking	Richards
Landscape Gardening, ½; Meteorology, ½	Lectures
Physics	Deschanel
Horticulture	Lectures

Afternoons: Physical Laboratory, 3-5.
Afternoons: Horticultural Laboratory, 2-5.

SECOND TERM.

Domestic Economy, Science of Nutrition	Atkinson
Economic Geology	Shaler
Zoology	Orton
Typewriting	Practice

Afternoons: Domestic Economy.

THIRD TERM.

Domestic Economy	Lectures
Geology	Dana
Recent History	McCarthy and Library
Stenography	Scott—Browne

Afternoons: Domestic Economy.

LADIES' COURSE.

SENIOR YEAR—FIRST TERM.

United States Constitution	Andrews
Psychology	Hill
Chemistry	Remsen
Literature	Hawthorne and Lemmon

Afternoons: Library in Literature, 2-5.
Chemical Laboratory, 3-5.

SECOND TERM.

Chemistry	Remsen
Applied Psychology	Tompkins
Logic	Gregory
Philosophy of History	Andrews

Afternoons: Chemical Laboratory.

THIRD TERM.

Political Economy	Walker
Chemistry of Common Life	Johnston
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Sociology, ½.
Recent History, ½.

Physical culture throughout the Junior and Senior years.

DEPARTMENTS OF INSTRUCTION.

AGRICULTURE.

By means of intelligent experimental work, conducted on the College Farm and at the Experiment Station, in which student labor is given a prominent place, a very practical training is given.

The authorities are making every effort to provide a thorough course of instruction in the School of Agriculture, designed especially to educate the students for agricultural pursuits and scientific investigations.

Special agricultural work is begun in the Fall term of the Freshman year. In the Sophomore year, farm buildings and farm roads receive attention. In the Spring term of this year, the young men receive instruction in stock-breeding and the ladies take work in dairying.

In the third term of the Junior year, there is further instruction in regard to soils and practical irrigation. Part of the Junior and part of the Senior year is given to the subject of live stock in its various branches; the care and feeding of horses, cattle, sheep, and hogs; the preparation of food, ensilage, soiling, etc.

Dairying is taught, the first term of the Senior year, by means of lectures and recitations in the forenoon. The exercises of the afternoon relate to butter making, milk testing, and the handling of dairy apparatus.

In the third term of the Senior year, the students take up the general subject of Agricultural Chemistry, with special reference to the fertilization and cultivation of crops.

The whole course is illustrated by the experimental work always in progress and is supplemented by daily practical work on the farm and in the laboratory.

The four-year Agricultural Course is designed to give to the student a thorough knowledge of the principles and practices of Agriculture, and at the same time to provide enough training in other branches of learning to furnish a well-rounded education that shall fit him for the general affairs of life.

BOTANY AND HORTICULTURE.

Botany—The study of Botany begins with the Freshman year. The Fall term is devoted mainly to Structural Botany. The plant as an individual is studied as to its parts or organs—the relation each part bears to the whole—the variations in the parts, and the uses they serve. Roots, branches, buds, leaves, flowers, and fruits are placed in the students' hands, and the technical descriptive terms are learned by applying them directly to the plants.

Gray's Lessons is used as text to supplement the instruction from the plants themselves. A few lectures on classification and the relations of plants to each other.are given toward the close of the term.

The Spring term of the same year is devoted to Systematic Botany. Dissecting microscopes and necessary tools are furnished and plants are each day supplied for analysis. Students are taught the application of the principles learned during the first term, so that they may understand the methods of determining the names of plants. The great variety of plants at hand enables the student to become familiar with all the leading natural orders. Written descriptions of the plants analyzed are required. Coulter's Manual of Rocky Mountain Botany is the text-book used.

Physiological Botany—In the Winter term of the Junior year, the Agricultural students study vegetable physiology and the minute structure of plants, using as a text-book Strasburger's Practical Botany.

Compound microscopes are supplied and the Botanical laboratory is open to members of the class two hours each afternoon.

An herbarium of native and foreign plants and the green-house furnish material for study.

A portion of this term is devoted to Cryptogamic Botany, special attention being given to rusts, smuts, and mildews injurious to plants.

The laboratory is well equipped with books of reference and with all necessary apparatus and reagents.

Horticulture—Instruction in Horticulture is given by lectures. The first course of thirteen weeks, in the Fall term of the Junior year, deals mainly with methods. Under the general head of vegetable-gardening, the principal topics considered are—the best soil and situation for a garden; manner of laying out a garden; irrigation of garden crops; rotation of crops; methods of planting and management; composts and commercial fertilizers; care of tools; construction, management, and uses of hot-beds and cold-frames; harvesting, marketing, and storing vegetables.

Brief historical notes, and full cultural directions, are given concerning all the vegetable plants commonly grown in gardens.

Small fruit culture is next taken up; each kind is considered in detail as to its history, propagation, cultivation, harvesting, marketing, the best varieties, and the diseases to which it is subject.

Then follows a series of lectures upon methods of plant propagation, including a thorough discussion of budding and grafting.

Plants, tools, and other appliances are provided for class-room use in giving practical illustrations of the subject treated.

A portion of this term is devoted to Forestry. Lectures are given on the gathering and preservation of forest tree seed, the planting of seed, and the care of seedlings; on the value of trees for timber and ornament, for hedges, screens, and shelter belts.

A second course of lectures during the Winter term of the Senior year treats of the theory of Horticulture, and considers in detail the underlying principles of garden practice; lectures are given upon the history of cultivated plants, variation of plants under cultivation, as influenced by climate, latitude, altitude, and general surroundings; cross-fertilization and hybridization. Pomology is then taken up, and the theory and practice of orchard management considered in detail.

Floriculture is also treated on such topics as the construction, heating, and management of green-houses, the propagation, cultivation, and management of green-house plants for commercial or private purposes.

Landscape Gardening—One-half of the Fall term of the Junior year is allotted to this study. The general principles of the art are taught by lectures and practical instruction given in the selection and laying out of city and country places. The principal topics are, the selection of a place, the location of buildings, drives, and walks, what to plant and how to plant. The works of Downing and Kemp are used as books of reference.

ZOOLOGY AND ENTOMOLOGY.

Physiology—This subject is taught during the first and second terms of the Sophomore year, Martin's Human Body being used as a text-book. Aside from the daily recitations, students spend two hours a day, during the first half of the second term, in the laboratory, to study human and comparative osteology and histology, and to dissect anaesthetized animals for the purpose of making a careful study of the various organs and tissues.

The laboratory is well-equipped, possessing, among other things, a fine series of mounted skeletons, an expensive manikin (a life-sized model of the human body so dissected as to show nearly every tissue and organ that can be seen in an actual dissection), enlarged *papier mache* models of the eye, ear, brain, and other important parts; also compound and dissecting microscopes, microtomes, and dissecting instruments.

Zoology—Zoology is taught in the second term of the Junior year in the Agricultural Course and the Ladies' Course. This branch of natural science is taught by means of a text-book and actual demonstrations in the laboratory. Each student is furnished with typical forms of the different branches of the animal kingdom, which he studies carefully, making drawings and taking notes. In this manner the student acquires a practical knowledge of the structure and classification of animals, that he cannot obtain by mere study of books.

Microscopes, dissecting tools, and all necessary equipments for laboratory work are furnished free, each student being required to care for his own instruments.

Entomology—Work begins in the third term of the Junior year in the Agricultural Course, and is furthered by the use of a text-book with laboratory work. Each student also gets together and classifies a collection of insects representing all the orders, and follows a few species through all their transformations, taking notes and making drawings and descriptions.

Particular attention is given to the economic features of this study. Those insects known to be injurious are given special attention, and the students are made familiar with their habits and natural histories. Students also prepare the principal insecticide substances and apply them for the destruction of insects.

In connection with this department are a good apiary and honey-house, thoroughly equipped with the most modern appliances, and students so desiring are taught and allowed to put into practice all the manipulations of the apiary.

Students taking this study are required to purchase Packard's Entomology for Beginners.

CHEMISTRY AND GEOLOGY.

Chemistry—It is the object to give the student an opportunity to acquire a thorough mastery of the elementary principles of chemical science. To attain this object, theory and practice are made to go hand in hand. In the first term of the Senior year the class receives a series of lectures, accompanied by text-book work, upon the general theory of the science, its history and development. In this course of lectures are discussed the subjects of acids, bases and salts, and the principles of chemical philosophy. The natural history, chemical and physical properties of each of the elements are discussed in detail, the whole being illustrated by experiments. While taking this course, the student spends two hours each day in the chemical laboratory, repeating the experiments shown in the class-room, and making others which may be suggested, thus familiarizing him with the various forms of compounds, the marked distinctions between the different classes of salts, the use of chemical nomenclature, and the manipulation of apparatus. Practice in the use of the blow-pipe accompanies this work, and an insight into determinative minerology is thus acquired. The use and application of the spectroscope are also taught. The students in the laboratory at the end of the first term, are examined in the text-book and by analysis of *unknown bodies* in the dry way.

In the second term of the Senior year, the Inorganic Chemistry is finished and Organic Chemistry is taken up. The laboratory work continues throughout the term, and the student takes up the tests for the bases and their separation; also the tests for the acids and their separation. The students are examined at the close of the second term by means of unknown bodies, composed of mixtures of the several groups of bases.

In the Agricultural course, in the third term of the Senior year, the students listen to a course of lectures upon Agricultural Chemistry, in which are discussed

such subjects as the following: Relation of Chemistry to Agriculture, the literature of Agricultural Chemistry, elements of plant growth, their relative abundance and importance, the atmosphere, the soil, fertilizers, etc. Storer's Agriculture, Johnson's "How Crops Grow" and "How Crops Feed" are used as reference books. Laboratory work accompanies the lectures and work in the text-books. The study of quantitative analysis begins in the gravimetric way, and, after some little practice, students will be directed in any line of special work they may desire.

Keeping in mind the object for which the College is founded, we have so planned our Chemical course as to prepare the student for the general application of Chemistry to the industrial arts, while seeking thoroughly to ground him in the application of science to agriculture. A chemical laboratory, fitted up with modern appliances, balance-room, foul-gas room, and desks for thirty-six students, is ready for the classes.

Students have access to the following current chemical literature: *Chemical News, Analyst, Journal of the Chemical Society, Journal fur Landwirthschaft, Journal of Analytic Chemistry*, and "Fresenius Zeitschrift fur Analyt. Chemie."

Geology—Recognizing the fact that a knowledge of Geology is one of the foundations of agricultural science, the subject receives corresponding attention. In the second term of the Junior year Economic Geology is taught, Shaler's Geology and Tarr's Economic Geology of the United States being used. In the third term of the same year Systematic Geology is taught from Dana's New Text-Book of Geology and by means of lectures. Frequent visits to the mountains and quarries illustrate the practical application of dip, strike, fault, etc. At the close of the work, the students are required to identify and describe twenty-five rocks or mineral specimens.

CIVIL AND IRRIGATION ENGINEERING.

General Statement—In the last two years of the College course, special training is given, to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurement and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The department has a good collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for stream gauging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Cement Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile, and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India, and Australia. In the present condition of Irrigation Engineering these collections are especially useful.

Irrigation Engineering—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in the midst of one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

The Materials of Engineering—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron, and steel. Exercises with testing-machine familiarize students with the peculiarities of these materials.

Surveying—The principles of Land Surveying are taught in the last term of the Sophomore year. While instruction therein is given to the students in all courses, it is intended to cover the ground with sufficient thoroughness that the students in the Civil Engineering Course will not need to traverse any of the same ground again. The course includes a study of the operations of surveying; the adjustments of the instruments used by the surveyor; surveying with picket, chain, and compass; and leveling. Considerable attention is given to the methods of the Government Surveys, the finding of corners, and platting. Field work is required of each student for six weeks, two hours daily, in which exercises are given in chaining, measurement of angles with the chain and with the compass, compass surveying, and leveling. Attempt is made to teach the student to be careful and accurate, and to give him the confidence that comes with correct work. The student is required to check his work, and the exercises are so planned that many exercises check the results of others. When possible, a short time is given to a discussion of the measurement of water and the hydraulic laws relating thereto—knowledge useful to every citizen of an irrigated country and expected of every surveyor. A more extended training in this line is given in the later years of the course.

Reservoirs and Dams—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability are taught; also the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

Agricultural Hydraulics—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable; principles of irrigation; laying out of grounds or farms for irrigation; and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural Courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

Trusses and Bridges—The instruction covers the methods of computing the stresses in bridge and roof trusses; the principles involved in the construction of trusses; and their erection, designing, etc. Merriman's *Trusses and Bridges* is used as a text-book.

Meteorology—A six weeks' course of lectures is given in the Fall term. This course includes a discussion of the means of taking observations; methods of exposure of instruments and precautions for taking correct observations; the characteristics of climate; especially the features of the climate of Colorado; barometry and thermometry; influence of the various meteorological elements upon agriculture and plant growth;

influence upon health; the study of storm movements from the daily weather charts and telegrams; the laws of storms; characteristics and causes of special storms, as chinooks, northers, hailstorms, tornadoes, and cloudbursts. The College and the Meteorological Section of the Experiment Station possess a complete line of meteorological instruments which are in constant use. These include self-recording thermometers, barometers, rain gauges, sunshine recorders, psychrometers, anemometers, etc. The records from these instruments—together with the results of the meteorological investigations at the College for the time since the Experiment Station was established—and the daily charts of the Weather bureau furnish material for illustration and study in connection with the course.

Physics—Instruction in Physics is given for three terms of the Sophomore and Junior years, the course lasting one complete college year. Laboratory work is carried on two hours daily for one-half of each term. The important sciences of Mechanics, Light, Heat, Sound, and Electricity are studied. Special attention is given to the latter subject, both in the class-room and in the laboratory, in view of its increasing important applications, and as a basis for Electrical Engineering. In the course in laboratory work, the student deals personally with the apparatus described in the text-book, performs experiments for himself, and carries on determinations of the physical constants, or experiments in such ways as will give training and knowledge and greater familiarity with the subjects studied.

The following is a selection from some of the laboratory exercises of the past year:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing of the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle-power of sources of light.

Determination of focal length of lenses and mirrors.

MECHANICAL ENGINEERING.

General Statement—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines, and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops, and experimental laboratory. The studies of this course which are in common with other courses are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.
Boilers.
The steam engine.
Machine design, machinery, and mill work.

Drawing—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

Carpentry and Joinery—The class-room work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

Pattern-making and Foundry Work are similarly taught. The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, and, in connection, instruction in core-making and the management of the cupola and brass furnace.

Forge Work, etc., is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening, and annealing.

Machine Work and Vise Work are taught in a similarly thorough and careful manner.

Principles of Mechanism are studied with reference to the combinations of which machines are composed; and the study of designs for the communication of motion by means of gears, belts, links, etc., forms an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. Most of these models were acquired by gift from the makers, or by purchase. In many cases they were constructed by the students from their own designs.

Strength of Materials is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns, and other structural pieces, tests are made of chains, ropes, cables, solid bars, and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws; and strength of bricks, stones, marble, etc.

Machine Design is taken up for one term, and the students make designs for various machines and appliances.

Boilers—The various forms are carefully studied from the best authors.

The College possesses four steam boilers to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples obtained from different sources of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings; and a large collection of parts of boilers showing conditions incident to boiler management.

A new calorimeter has recently been constructed by the students which, together with new and accurate thermometers, adds greatly to the facilities for the study of boilers and boiler tests.

The Steam Engine is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests.

There are four steam engines at the College, three of which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These with what has already been named form a desirable equipment for the use of the students.

One twelve horse power steam engine is set for a Prony brake. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

Machinery and Mill Work receive attention, and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied.

The care and management of shops and the making of estimates are also considered; shop building and appliances receive careful attention.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

COURSE OF LABOR.

Bench work in wood	13	weeks
Wood-turning	12	"
Pattern-making	12	"
Moulding and casting	12	"
Iron and steel forging	13	"
Machine work in metals	12	"
Vise work in metals	12	"

BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First—The use of planes in joining, smoothing, and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle.

Students usually work from drawings. Cases, benches, boxes, foundry flasks, and a variety of other useful articles are made.

Machine Work in Wood—In connection with this course, with the use of tools, will be given the most rapid and economical method of selecting and preparing the wood for the machine. There will be given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools; and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five horse power vertical steam engine complete in all its details, a number of drafting tables, five dynamos, boring bars, gears, vises, bells, and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

Pattern-making and Foundry Work—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft, and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There will be given

examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where molds and cores are made, and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the molds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass, and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes, and other things needed.

Forge Work—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer, and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers, and all bolts, braces, and such other iron and steel work as may be needed.

Machine Work in Metal—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals. Centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping, and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work.

Practical Mechanics—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers, practically, the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of *how* a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by this training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

Tool-Room System—There is a well-arranged tool-room, fitted-up with a check system designed to accustom students to order and neatness and the names of the tools in use.

Theory and Practice—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the class-room is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

MATHEMATICS.

General Statement—The purpose of the instruction offered by this Department is two-fold: First, to give the student clear and exact ideas of magnitudes and their measurement, the principles underlying the methods used, and the general unity pervading the mathematical sciences, or such of them as he has time to become acquainted with; second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

Arithmetic is taught the students of the Preparatory class. The year's work is designed to give a thorough review of the principles underlying the fundamental operations, and to give skill in the application of these to the various problems of business arithmetic. The students taking the work of the first term of the Sub-Freshman year receive a thorough drill in Mental Arithmetic.

Algebra is begun the second term of the Sub-Freshman year. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposed in character, and of the conciseness obtained by the use of literal notation; and to give him sufficient skill in the fundamental operations of Algebra to enable him to solve intelligently simple equations involving one unknown number. Subsequent work acquaints him with the solution of simple equations of several unknown numbers, with involution, evolution, radicals, quadratic equations, and as much more as may be possible in the time allowed to the subject.

Geometry is taken up as soon as the student is sufficiently acquainted with algebraic methods to apply them intelligently to the computations of this subject.

In the first of the three terms allotted to the study the student is given a thorough practical acquaintance with the construction of geometrical figures and led to discover for himself as many as possible of the properties of the figures he deals with. To this end he is compelled to use exact methods of construction and to make exact measurements on his figures. Having thus gained an extensive practical acquaintance with the subject, he next takes up formal proof by the syllogistic method and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience and is given thorough practice in the mensuration of geometric magnitudes. So far as the time and ability of the student will permit, he is practiced upon original exercises.

Trigonometry is taught in the second term of the Sophomore year. In the time allotted to this branch, the student is given clear ideas of the trigonometrical concepts, shown their connection, and given considerable practice in the practical application of this branch of Mathematics.

Descriptive Geometry—From the wide application of Mathematics in all branches of Engineering, those students electing either of the courses having to do with Engineering, pursue the study of Mathematics throughout the entire course, with the exception of the last two terms of the Senior year.

Descriptive Geometry is taught to those students electing the two courses in Engineering. The second and third terms of the Sophomore year are devoted to this subject. The principles of parallel and central projection, of development, etc., are discussed and illustrated in the solution of a great variety of problems, and many of these are accurately worked out on the draughting-board by each student.

Higher Algebra—The first term of the Junior year is devoted to a brief review of quadratics and radicals, and to the study of the principal algebraic methods usually denoted by the name Higher Algebra. Among the subjects considered are, Series of various sorts; Mathematical Induction and some of its applications, such as the demonstration of the Binomial Formula; the Theory of Equations; and various methods of solution of equations of the third and higher degrees.

Analytic Geometry—The second term of the Junior year is devoted to the study of Analytic Geometry. The student is made acquainted with the method of co-ordinates, and the connection between algebraic and geometric forms. The fundamental properties of the conic sections are developed, and as much more of the subject as the time permits.

Calculus—The last term of the Junior and the first term of the Senior years are devoted to the study of Differential and Integral Calculus. Taylor's Calculus is used as a text-book, and the study is pursued substantially as the subject is there developed. The notion of limits is, however, made the logical basis upon which the subject is developed.

The department is provided with a set of Schroeder models from Darmstadt, for purposes of illustration in the study of Solid Geometry, and with models of warped surfaces, etc. The collection is being added to from time to time. There is a collection of drawings for use in the study of curves and curve-tracing.

HISTORY, LITERATURE, AND GERMAN.

A well-rounded education includes a somewhat thorough knowledge of History and English Literature. These subjects are studied throughout the entire course. United States History is a part of the work of each term of the Sub-Freshman year. Two terms of the same year require some work in English and American Literature. The study of the history of the United States is aided by maps illustrating the periods of maritime discovery, the colonization of the New World, territorial acquisitions, etc.

The course in General History and English Literature is as follows:

FRESHMAN YEAR.

First term—Ancient History: Greece and Rome.

Second term—Europe from the Invasion of the Northern Barbarians to the French Revolution.

English Literature to Shakespeare. Readings from Chaucer, Spenser, and Elizabethan prose writers.

Third term—Europe: French Revolution to the present time.

Shakespeare to the present time. Readings from Shakespeare, Milton, Bunyan, Dryden, and later writers.

JUNIOR YEAR.

Third term—Recent History of America, A., L.

SENIOR YEAR.

First term—English Literature, L.

Second term—Philosophy of History, L.

Third term—Recent History of Europe, A., M., C., L.

Afternoons: Readings in History four hours per week in Library.

Sheldon's General History is used as a text-book. The student is taught to reason about historical events and is required to consult books of reference.

Kellogg's Literature is the basis for the study of English Literature. Each historic period and the authors of that period are considered together. Class work also includes lectures.

Members of the Ladies' Course engage in a more extended study in English and American Literature.

Each member of the class reads masterpieces from the greatest English writers, makes comparisons between them, and studies style with as much care and thoroughness as possible.

The development of literary taste is the aim of this work. The study of the Philosophy of History includes such subjects as, historical investigation; laws governing human actions; reciprocal influences of religion, literature, and government; comparisons and criticisms of past civilizations; and the elements found in our present European civilization.

A valuable collection of photographs belongs to this Department and illustrates the architecture of the past and present from ruins, and buildings now in existence.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European History since the Christian Era, and also include seven maps for the study of Ancient History, and excellent maps for studying United States History.

The College Library is an important factor. Its shelves are well filled with standard literature, and with works of special interest and assistance to the student of history.

German—Opportunities for the study of German will be furnished by this Department. Such work will be elementary or more advanced according to the abilities and needs of students.

ENGLISH AND SOCIOLOGY.

English—The ability to write a clear and an elegant English sentence is an accomplishment much to be desired; and it is a recognized fact that English forms an important branch in all well-rounded courses of study.

In the Winter term of the Freshman year, the subject of Composition and Rhetoric is studied, with Lockwood's *Lessons in English* as a text-book. The object of this work is to familiarize the student with the structure and arrangement of sentences and the fundamental principles of style. It is designed to enable the student to acquire skill in the logical arrangement of his thoughts, and to express them in a clear and forceful manner.

In the Fall term of the Sophomore year, advanced work in Rhetoric is required. Genung's *Practical Rhetoric* is used as a guide. Among the subjects receiving attention are: Diction, Description, Narration, Exposition, Argumentation, Persuasion, Figures of Speech, and Versification. The laws of mind and language as related to effective discourse, is a subject given special consideration.

Composition writing and the preparation of orations form an important feature of the work in English.

Civil Government—An intimate acquaintance with the Constitution of the United States is recognized as an essential to good citizenship, and for this reason Civil Government is placed early in the course of study. This subject is studied by the members of the Sub-Freshman class during the Spring term. Townsend's *Shorter Course in Civil Government* is used as a text-book.

Ethics—This subject is taught by lectures. The class-room work is supplemented by reading. Much independent work is required of the students.

Applied Psychology—This branch is studied by the students of the Ladies' Course in the Winter term of the Senior year. Tompkin's *Philosophy of Teaching* is used as the basis for the work.

Sociology—This forms a part of the Agricultural Course and Ladies' Course, and is studied during the Spring term of the Senior year. Small and Vincent's text-book is used. This subject is made as practical as possible. Each student is required to pursue independently some line of investigation and to embody the results of his work in a thesis.

General Statement—In all the work of the Department of English and Sociology, the Library serves as an important and a necessary factor. Works of reference are consulted. Prescribed courses of reading and study are followed in Ethics, Sociology, and related subjects.

DOMESTIC ECONOMY.

The work outlined for the Department of Domestic Economy covers the preparation which the proper care of the home requires. There are three terms of text-book work, two terms of lectures, and nine terms of practical exercises.

Home Hygiene—This subject is taken up at the beginning of the second term of the Sophomore year. The text-book used is *Public Health*, a series of prize essays relating to health in the home, healthy foods, school sanitation, disinfection, prevention of disease, etc.

Household Economics—Lectures on *Household Economics* are given to the ladies of the Sophomore class in the third term of the college year.

Chemistry of Cooking—In the first term of the Junior year the subject considered is the *Chemistry of Cooking*. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The subject, in many of its phases, is considered in the first term of the Junior year. The second term of this year, Atkinson's *Science of Nutrition* is used as a basis for class exercise and lecture work. The bulletins of the United States Department of Agriculture are helpful in this work.

The Sick Room—The work of the third term, Junior year, includes lectures on nursing, emergencies, etc.

Sewing—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery, and millinery. Special attention is given to dressmaking.

The Kitchen—The work in the kitchen laboratory includes the study of foods with practice in all kinds of cooking and laundering.

General Topics—A lecture is given each Friday afternoon on some topic relating to the care of the house, clothing, and person; social duties; customs of good society; and anything that will aid in the development of a perfect womanhood.

POLITICAL ECONOMY AND LOGIC.

Political Economy—The text-book used is Walker's *Political Economy.* Other works of the author, and the writings of the best authorities on economic questions, are within reach of students who visit the Library.

The important questions with which the subject deals are treated without attempt to uphold any narrow, one-sided view. Economic questions of particular importance to the people of the United States are given special prominence in the recitations, discussions, and lectures. These are considered from a historic and an impartial standpoint.

Logic—This study is taught by recitations, discussions, and original exercises. Careful consideration is given to the principles of deductive reasoning. The syllogism is analyzed. The principles and methods underlying scientific investigation are made subjects of study, and the basis of class discussion and essay work. Practical application of what the student learns in the study of Logic is made in testing the validity of arguments and detecting fallacious reasoning.

The history of the science is considered and something learned of the writers whose works thereon have recognized merit. Gregory's Practical Logic is the text-book used.

Civil Government—The study of the Constitution of the United States is an important preparation for the duties of citizenship. The subject, as one of the studies of the Senior class, includes some consideration of the political history of the United States. The Constitution of the State of Colorado and the organization of the departments of government in conformity with its provisions are considered in special lectures.

Psychology—Hill's *Elements of Psychology* is the text-book in use. The subject is taught principally by recitations, discussions, and lectures. Much oral work is done in connection with recitations based upon the text. Supplementary reading along the lines of recent investigations is encouraged. Contributions to the science, found on the pages of the best periodicals, supplement the text-book statements. The lives and writings of representative thinkers in the domain of metaphysics afford interesting topics for much oral instruction and library investigation. Something is done to point out the sources whence a knowledge of the history of psychology can be obtained. The relations of the subject to the work of the teacher are pointed out and made themes for study and discussion.

MILITARY SCIENCE.

A recent act of the General Assembly of Colorado places the Cadets of The State Agricultural College upon the same footing as regards arms, ammunition, and camp and garrison equipage as the Colorado National Guard.

For instruction in Military Tactics, the students are formed into companies and the companies into an Infantry Battalion with proper Field and Staff.

The system of instruction being that in use in the United States Army, is calculated to form the habit of prompt obedience, foster the natural martial instinct, and prepare the student, should necessity arise, to organize a company or battalion of our National militia.

The drill includes the School of the Soldier, company and battalion in close and extended order, a thorough course in position, sighting, and aiming exercises, competition with rifle at short ranges, and a series of lectures on castrametation and the art and science of war.

Instruction in Artillery embraces such portions of the United States drill regulations as pertain to the formation of detachments, manual of the piece, mechanical maneuvers, aiming drill, etc. For use in drill, the department has two three-inch rifled field pieces, from the Rock Island Arsenal, and one hundred and fifty cadet rifles, with accoutrements.

Military drill is required of each male student, unless excused for physical disability or by special vote of the Faculty for good and satisfactory reasons. Each cadet is required to purchase a copy of the standard United States Infantry Tactics, for study and reference. He is also to provide himself with a uniform, modeled somewhat after the uniforms of the regular army. It is neat and durable, consists of blouse, pantaloons, cap, and gloves, and costs about twelve dollars.

In the Fall and Spring terms, a period of forty-five minutes daily is devoted to outdoor maneuvers. During the winter, the new armory is used and a portion of the time is devoted to recitations in tactics and to lectures. When possible, an encampment will be held at the close of the Spring term for practical instruction in guard and field duty.

MILITARY ORGANIZATION.

Harry D. Humphrey, First Lieutenant 20th Infantry, U. S. Army, *Commandant.*

Staff—A. H. Bungardt, *First Lieutenant and Adjutant;* Grafton S. Norman, *Quartermaster Sergeant;* James M. Loud, *Sergeant Major.*

COMPANY A.	COMPANY B.
Captain— R. A. Maxfield.	*Captain*— R. W. Sears.
First Lieutenant— A. S. McKee.	*First Lieutenant*— Fred Alford.
Second Lieutenant— R. W. Hawley.	*Second Lieutenant*— H. F. Alps.

COMPANY A.

First Sergeant—
A. P. Greenacre.

Sergeants—
W. E. Becker,
B. A. Gage,
W. A. Hilton,
J. E. Kiteley.

Corporals—
R. T. Calkins,
H. O. Brown,
E. C. Beach,
C. H. Annis,
C. S. Bungardt.

COMPANY B.

First Sergeant—
A. J. Harris.

Sergeants—
D. J. Richards,
R. H. Hess,
F. T. Woods.

Corporals—
A. F. Lindon,
R. S. Gray,
R. N. Underwood,
Frank Corbin,
R. L. McConnell.

Chief Trumpeter—Hoyt D. Whipple.

COMMERCIAL COURSE.

By action of The State Board of Agriculture, taken in December, 1895, the College Faculty was instructed so to arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of The State Agricultural College."

The preparation of the work of the new department is so far under way, that some authorative announcements in relation thereto can be made.

J. A. Christman, of the New Mexico College of Agriculture and Mechanic Arts, will be the professor in charge. He will be ably assisted by a corps of competent instructors. A special circular setting forth the work of the course more in detail will be issued in July.

The following statements are made in advance of the preparation of the circular referred to:

"With the beginning of the fall term, September, 1896, the authorities of The State Agricultural College, Fort Collins, Colorado, will establish a 'Commercial Course' in connection with the other college work now in successful operation. The course will cover a period of two years, will be thorough, and will include all branches usually taught in the best business colleges in the country. The idea is to take enough time to enable the student to acquire a practical mastery of everything that belongs to every-day operations as they come up in the business world.

"Students, prepared for it, will be given advanced standing in the course. It is the intention to make the diploma the best possible evidence of its possessor's fitness for intelligent, systematic, painstaking, and expeditious work in any of the lines of business for which the best commercial courses give training.

"Then, the students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the college associations of all kinds, and all the elaborately-equipped laboratories will be open to the students of the department and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

"The college surroundings at Fort Collins are beautiful, healthful, and otherwise conducive to good educational effort on the part of students. All charges for board and lodging are very reasonable, and access to every department or class of the College is absolutely free.

"Some of the subjects that will form a part of the business course, and which will receive careful attention from the outset, are spelling, penmanship, typewriting, stenography, telegraphy, book-keeping, commercial arithmetic, commercial correspondence, commercial law, international law, and such necessary and cultural ones as elementary algebra, plane geometry, civil government, history, political economy, rhetoric, and literature. There is every reason to believe that the new department will be popular from the first and that its practical work and management will bring its graduates into the business world well qualified to fill the most important and lucrative positions attainable therein."

BRANCHES NOT ELSEWHERE NAMED.

Oratory—This has been defined as the "Art of influencing conduct with the truth sent home by all the resources of the living man."

The study of the Art of Expression is followed in some form throughout the College course. A healthful interest in the subject has been manifested by all the students.

Our public institutions, our form of popular government, great questions of moral and political moment, the almost boundless possibilities within the grasp of individual effort, all tend to increase and intensify the interest in, and to emphasize the importance of, this much-needed branch of education.

Few text-books are required in this branch, as copies of the best selections of English prose and verse are furnished the students. This gives a much broader range and scope to the study, and adds an interest to the work not otherwise attained.

Practical rhetorical work is given by the students before audiences every Friday evening. These entertainments are becoming quite popular and tend to encourage the students to faithful work.

Physical Culture—All lady students are required to enter the class in *physical culture*.

Those physically unable to prosecute the work are excused by special action of the Faculty. The young ladies usually enjoy the training and under it grow in grace of movement and ease of bearing. The exercises give promptness and precision of action and promote bodily health and strength.

Special physical exercises are marked out as the individual needs of each student require, and results are closely watched. The College is well-equipped for all the work attempted.

Vocal Music—Attendance upon the different classes in vocal music is voluntary. Since the establishment of classes, many students have manifested an active interest in the work. The College Glee Club is an outgrowth of the interest taken in music by some of the students. The degree of proficiency which this organization has attained, in a comparatively short time, is very creditable.

It is the aim of the instruction to give a thorough knowledge of the elementary part of music and some acquaintance with advanced work. Students are taught sight reading and the theory of music; also, they learn something of the biographies of the most eminent composers.

"*The Classics*"—The State Agricultural College is not a *classical* school. Its operations are conducted in conformity with the provisions of the statutes of the United States, and the State of Colorado, elsewhere quoted. There is nothing in any law to prohibit instruction in the languages, ancient or modern, in what are termed "Land-grant Colleges." On the contrary, some work in foreign languages is clearly contemplated in the various acts relating to these educational institutions. There has been a demand for more linguistic work than is outlined in the different courses of study now pursued in the College. To meet this demand a competent instructor in Latin and Greek has been employed. Classes in each language will be organized at the opening of the college year, September, 1896. Students are not required to enter either of these classes by reason of any regulation prescribing the work to be done in any existing course of instruction. All work in Latin and Greek will be elective. Such work, if satisfactorily done, may be accepted, under Faculty regulation, as a substitute for such regularly scheduled work as may not be regarded as an *essential* part of the specific course upon which the student has entered.

Modern Languages—The best scientific and technical schools of the country make provision, more or less thorough, for some instruction in German and French. The students of such schools have great advantage in the prosecution of their work if the scientific and technical knowledge of German and French authors is accessible to them. Hereafter, the College will offer instruction in German and French to such students as elect to receive it. This instruction will be given by those who make use of the most approved method of teaching a foreign language.

Public Rhetoricals—Each student enrolled has at least one public rhetorical exercise each College term, unless excused by Faculty vote. These exercises consist of declamations and recitations for the lower classes and original exercises for the advanced students. The importance of these exercises to the student can scarcely be over-estimated, as every one should have a training which will enable him to present his views upon any question in public in an intelligent and a pleasing manner.

THE LIBRARY.

The College Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. Now it contains 10,000 bound volumes besides many thousand pamphlets. The State Board of Agriculture recently appropriated $3,300 from the "Annie Jones" and "College" funds for library support the current year. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture; Irrigation, principally by English, French, and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoology and Entomology; Mechanics and Engineering; Political Economy; Domestic Economy; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc., etc., etc.

On the shelves are found bound volumes of the following-named periodicals:

Agricultural Science.
American Agriculturist.
American Architect.
American Bee Journal.
American Chemical Journal.
American Garden.

American Journal of Science.
American Machinist.
American Magazine of Civics.
American Meteorological Journal.
American Naturalist.
Anthony's Photographic Bulletin.
Appleton's Journal.
Atlantic Monthly.
Arena.
Art Amateur.
Auk.
Blackwood's Magazine.
Botanical Gazette.
Breeders' Gazette.
Bulletin of the Torrey Botanical Club.
Canadian Entomologist.
Century Magazine.
Chemical News.
Contemporary Review.
Cosmopolitan.
Cottage Gardener.
Country Gentleman.
Critic.
Current History.
Eclectic Engineering Magazine.
Eclectic Magazine.
Educational Review.
Edinburgh Review.
Edinburgh Philosophical Journal.
Electrical World.
Engineering Magazine.
Engineering News.
Engineering Record.
Entomologist.
Forum.
Farmers' Chronicle.
Garden and Forest.
Geographical Society's Journal.
Good Health.
Good Housekeeping.
Harper's Monthly Magazine.
Harper's Weekly.
Historical Magazine.
Irrigation Age.

Journal of Botany.
Journal of Chemical Medicine and Veterinary Science.
Journal of Ethics.
Journal of Morphology.
Journal of Natural History.
Journal of Psychology.
Journal of Science and Arts.
Journal of Veterinary Archives.
Journal of the American Chemical Society.
Journal of the Association of Engineering Societies.
Journal of the Chemical Society.
Journal of the Franklin Institute.
Littell's Living Age.
Magazine of Western History.
Magazine of Horticulture.
Meehan's Monthly.
Meteorological Journal.
Microscope.
Microscopical Journal.
Mining Industry and Tradesman.
Nation.
National Live Stock Journal.
Nature.
North American Review.
Pacific Rural Press.
Physical Review.
Political Science Quarterly.
Popular Science Monthly.
Popular Science News.
Power.
Proceedings of the Academy of Natural Science (Philadelphia).
Proceedings of the California Academy of Science.
Public Opinion.
Publishers' Weekly.
Review of Reviews.
Rural New Yorker.
Safety Valve.
Scientific American and Supplement.
Scientific Farmer.
Scribner's Monthly.
The Horticulturist.
Translations and Reprints of European History.
Wallace's Monthly.
Werner's Magazine.
Zoologist.

Current numbers of the following-named newspapers and periodicals can be found in the Library reading-room:

Agricultural Epitomist.
Agricultural Gazette of New South Wales.
Agricultural South.
Alliance of the Rockies.
American Agriculturist.
American Architect.
American Creamery.
American Fertilizer.
American Gardening.
American Grange Bulletin.
American Horticulturist.
American Journal of Science.
American Journal of Sociology.
American Machinist.
American Magazine of Civics.
American Meteorological Journal.
American Microscopical Journal.
American Naturalist.
American Sheep Breeder and Wool Grower.
American Society of Civil Engineers.
Analyst.
Anthony's Photographic Bulletin.
Arena.
Argus.
Arid America.
Art Amateur.
Auk.
Baltimore Sun.
Boulder Camera.
Boulder Herald.
Botanical Gazette.
Cassier's Magazine.
Century.
Chemical News.
Church and Farm.
Coming Nation.
Contemporary Review.
Country Gentleman.
Cosmopolitan.
Critic.
Current History.

Current Literature.
Dakota Farmer.
Delta Fruit Grower.
Denver Daily Republican.
Deutsche Botanische Monatsschrift.
Electrical World.
Elgin Dairy Report.
Engineering Magazine.
Engineering News.
Engineering Record.
Entomologist.
Erythea.
Fancier and Farm Herald.
Farmers' Advocate.
Farmer's Home.
Farm and Home.
Farmers' Guide.
Farmers' Magazine.
Field and Farm.
Fort Collins Courier.
Fort Collins Express.
Fort Lupton Fact.
Fort Morgan Times.
Forum.
Gardeners' Chronicle.
Garden and Forest.
Good Housekeeping.
Grand Junction News.
Grand Valley Star-Times.
Grange Exponent.
Grange Visitor.
Greeley Herald.
Greeley Sun.
Greeley Tribune.
Harper's Magazine.
Harper's Weekly.
Highland Chief.
Hoard's Dairyman.
Industrial American.
International Journal of Ethics.
Irrigation Age.
John Hopkins University Studies.
Journal of Botany.
Journal of Morphology.

Journal of the American Chemical Society.
Journal of the Association of Engineering Societies.
Journal of the Chemical Society. (London.)
Journal of the Franklin Institute.
Land of Sunshine.
Leadville Pay-Streak.
Longmont Times.
Loveland Reporter.
Massachusetts Plowman.
McClure's Magazine.
Meehan's Monthly.
Meeker Herald.
Midland Poultry Journal.
Military News.
Mirror and Farmer.
Montrose Enterprise.
Montrose Press.
Nation.
National Stockman and Farmer.
Nature.
North American Review.
Pacific Rural Press.
Physical Review.
Political Science Quarterly.
Popular Science Monthly.
Popular Science News.
Power.
Practical Farmer.
Practical Nurseryman.
Proceedings of the Acadamey of Natural Science. (Philadelphia.)
Proceedings of the California Academy of Science.
Proceedings of the American Economic Association.
Psyche.
Public Opinion.
Revue Generale de Botanique.
Review of Reviews.
Rocky Ford Enterprise.
Rocky Mountain News.
Rocky Mountain Educator.
Rural New Yorker
Safety Valve.
Salida Mail.
San Luis Valley Courier.

Scientific American and Supplement.
Scribner's Magazine.
Southern Cultivator.
Southern Planter.
Statesman-Exponent.
The Industrialist.
Torrey Botanical Club.
Translations and Reprints of European History.
Twentieth Century.
Werner's Magazine.
West American Scientist.
Western Homestead.
Zoologist.

The Library is well lighted and adequately furnished. Save the noon hour, students can now enter the library rooms any week day between the hours of 7 A. M. and 5 P. M. On Sunday, the Library is kept open from 1 to 4 P. M.

Books may be drawn for a period of two weeks. The Library is catalogued according to the Dewey Decimal system, the author, title, and subject catalogues being complete to date. A comprehensive subject catalogue is now being completed. The cards are neatly and legibly written, and systematically arranged in convenient and accessible cabinets.

College Organizations.

LITERARY SOCIETIES.

There are two Literary Societies connected with the College—the "Philo-Aesthesian" and the "Columbian." Meetings are held weekly throughout the school-year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome. The "Philo-Aesthesian Society" meets in the College Chapel. "The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech."

The Spring-term organization was as follows: H. F. Alps, President; J. E. Kiteley, Vice-President; May A. Dievendorf, Secretary; W. F. Godsmark, Treasurer; R. W. Sears, Marshal; Mattie N. Shoemaker, R. A. Maxfield, A. J. Harris, Programme Committee.

"The Columbian Literary Society" meets in Horticultural Hall. "This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge."

The Spring-term organization was as follows: R. N. Underwood, President; G. S. Norman, Vice-President; Lulu Viets, Secretary; Emil Affolter, Treasurer; Emma S. Stover, Critic; May Rutledge, Sergeant-at-arms.

ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the

College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The officers at the close of the school-year were as follows: H. F. Alps, President; H. O. Brown, Vice-President; Mabel C. Blinn, Secretary; R. T. Calkins, Treasurer; J. H. Cowen, Superintendent of Contests.

The Association holds two contests each year; one for the members of the Sophomore and Freshman classes, the other for the members of the Senior and Junior classes.

The last Sophomore-Freshman contest took place, in the College Chapel, February 29, 1896. There were seven competitors. Fred S. Hotchkiss, of the Sophomore class, won first place and the silver medal. Maggie Prendergast, of the Freshman class, was given second rank. The Senior-Junior contest followed on the evening of March 7th. There were six contestants. H. F. Alps, of the Senior class, was awarded first place and the gold medal. W. A. Hilton, of the Junior class, was given second rank.

NATURAL SCIENCE CLUB.

This Club was organized by members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science; and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

The officers of the Club are, C. P. Gillette, President; Alston Ellis, Vice-President; L. D. Crain, Secretary; A. S. McKee, Treasurer; Carl F. Baker, Curator of the Museum; J. W. Lawrence, J. H. Cowen, Mabel C. Blinn, Programme Committee.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The purpose of the local organization is to promote growth in grace and Christian fellowship among its members. It urges aggressive Christian work particularly by and for students. Above all, it strives to point College students to a higher standard of moral excellence.

The officers in charge at the close of the College year were: Robert S. Gray, President; George R. Young, Vice-President; Alfred H. Ripley, Recording Secretary; William H. Kelso, Corresponding Secretary; Aaron V. Benson, Treasurer.

Grafton S. Norman represented the College Y. M. C. A. at the State Convention held in Canon City, Colo., Feb. 16-19, 1896.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

"The object of the Y. W. C. A. is the development of a higher Christian character in its members, and the prosecution of active Christian work among the young women of the College. It seeks to surround the students with an earnest spiritual atmosphere; to minister to their intellectual, moral, and social well-being; and to promote growth in goodness, purity, and truth."

Officers: Ninette E. Baker, President; Florence J. Boothroyd, Vice-President; Linnie M. Rutledge, Recording Secretary; Myrna M. Dix, Corresponding Secretary; Mabel C. Blinn, Treasurer.

WASHINGTON'S BIRTH-DAY.

Each year an organization of the students is formed for the purpose of properly celebrating Washington's Birth-Day. The last celebration was held in the College Chapel, Friday evening, February 22, 1895.

The speakers were as follows: Robert W. Sears, President; Henry F. Alps, College Orator; Wm. E. Becker, Class of '96; Robert N. Underwood, Class of '97; Frank T. Woods, Class of '98; Walter P. Hurley, Class of '99.

ARBOR DAY EXERCISES.

Exercises appropriate to the day were held in the College Chapel, April 17, 1896. Their nature is shown by the following programme:

Opening Remarks	President Alston Ellis
Oration—"Our Forests"	Abner S. McKee, '96
Recitation—"The Forest Hymn"	Maggie Prendergast, '99
Essay—"The Palm and the Oak"	Rose Gilkison, '97
Oration—"Man and Nature"	Philip H. Boothroyd, '98

ATHLETIC ASSOCIATION.

This Association was organized in the Fall term of 1892. Its object is to promote the physical well-being of its members and to afford such field practice in athletic games as will enable its chosen representatives to participate with credit in intercollegiate contests.

The Association is officered as follows: William A. Hilton, President; Fred Alford, Vice-President; William F. Godsmark, Secretary; Melvin D. Williams, Treasurer; Arthur H. King, Sergeant-at-Arms; Allen P. Greenacre, Field-Day Manager.

COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the College year. The columns of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official, and patron of the College.

The editorial staff is as follows: R. W. Hawley, '96, Editor-in-Chief; R. W. Sears, '96, Business Manager; F. T. Woods, '98, Literary Editor; J. M. Loud, '97, Local Editor; R. N. Underwood, '97, Advertising Editor; R. C. Calloway, '98, Society Editor; Gwendolen Silcott, '99, Exchange Editor.

MECHANICAL ENGINEERING SOCIETY.

This organization is of recent date. Its purpose is to afford its members opportunity "for mutual improvement and advancement in subjects pertaining to Mechanical Engineering."

Fred Alford, President; Olin G. Reed, Vice-President; Robert N. Underwood, Secretary.

COLLEGE GLEE CLUB.

Dann D. Gage, Leader; Alfred H. Bungardt, Assistant Leader; Henry F. Alps, Manager.

A. H. Bungardt, H. O. Brown, First Tenor; H. F. Alps, Andrew Macfarlane, First Bass; R. T. Calkins, C. S. Bungardt, Second Tenor; J. H. Cowen, J. M. Loud, Second Bass.

BUILDINGS AND EQUIPMENTS.

Main College Building—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Sociology; History, Literature, and German; Latin and Greek; Political Economy and Logic; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory, 40x72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian;* special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

Chemical Laboratory—This building has a lecture-room for forty students; a work or analytic room, with desks for twenty-four students, each desk being supplied with water and gas for the use of each student, and convenient hoods for ventilation; and a Station Laboratory, with balance-room, distillation-room, etc.

Horticultural Hall—The new Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52 by 64 feet. It is basement, two stories, and attic in hight. The basement which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work, and the storing of implements. The first story of the building has a ceiling hight of fourteen feet and is planned to contain one large lecture-room, office, assistant's office, herbarium, and other small rooms for experimental work. The second floor is arranged for a large museum with octagon ceiling; also private laboratories as well as plant, seed, and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

The conservatory attached, 20x50 feet, contains about 200 species, or 1,000 plants, representing many interesting and rare botanical families, and is heated by improved hot-water apparatus.

The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds, and cold-frames.

Agricultural Hall—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for class-room work. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, laboratory, agricultural museum, and seed-room. The basement has four apartments which are used for heating apparatus and storage.

Experimental Grounds—The farm of 240 acres, nearly all under cultivation, includes the experimental ground of about 20 acres, containing three plots, A, B, and C, the first consisting of fifty smaller plots, the second of thirty-three, ranging in size from 1-40 to 1-5 of an acre, and the third of sixteen, containing 1-4 acre each. All are permanently laid with drives and walks, and have iron stakes lettered and numbered to designate the corners. These permanent corner-stakes are four feet long, of which three and one-half feet are driven into the earth. In addition, there are several plots of one acre each, for larger experiments on the farm.

The live stock consists of Clydesdale grade draft horses, Short-Horn and Jersey cattle, Shropshire sheep, and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will admit.

Mechanical Engineering Building—This building includes two large main portions, two stories high, and an ell one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge, and adjoining it is the tool room supplied with a good assortment of small tools such as taps, dies, drills, reamers, gauges, and milling machine cutters. Here is kept the supply of nails, screws, belting, etc.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, one 17-inch engine lathe, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, and a universal tool and cutter grinder. An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

The testing laboratory is also in this room. It is supplied with a 50,000-pound testing machine. Prony brake, steam pumps, gauges, thermometers, etc.

At the west end of this story is a well-lighted class-room used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are sixty benches each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, and eight wood-turning lathes.

In the lower story of the east main portion of the building is the engine room containing the 50-horse power Corliss engine which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gauge tester affords a means of correcting steam gauges.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room which occupies the upper part of this building has accommodations for fifty students. In the ell portion of the building are found the coal house, blacksmith shop, and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are 25 forges all attached to an underground system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears. The store closets for iron and steel are in this room.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks, and skimmers. Most of the equipment for this room, including the cupola and blast furnace, was made by the students.

Civil and Irrigation Engineering—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main class-room is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A second room on the same floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the Section in the Experiment Station.

There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories, one-half of the area being used for each. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor, to lessen injurious vibration, is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000, for testing the flow of water through orifices and over weirs. Here also is placed the Pelton water motor and the cement-testing instrument, together with some other portions of the equipment, pipes, pressure-gauges, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gauges; gyroscope; air-pump and accessories; thermometers; mirrors and lenses; projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000-ohm resistance coil; astatic, sine, tangent, and d'Arsonval galvanometer; Edelmann ohmmeter; quadrant; electrometer; voltmeters; telephones; standard cells; and much minor equipment.

For use in Engineering and Hydraulics, it has Colorado, Lallie and Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gauges; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water-motor, presented to the Department by the Pelton Water Wheel Co., a water-meter, presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments, it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and a Buff and Berger transits; five levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement-tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing-machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

Military Science and Tactics—This department has one hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice, and artillery firing.

Domestic Economy—The Department of Domestic Economy has eligible and serviceable quarters in the building formerly occupied by the Department of Botany and Horticulture. The accommodations and appliances are ample for class-room and laboratory work in everything connected with household management.

Scientific and Technical Apparatus—All departments of science have elaborate, modern, and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy, and entomology is done with the aid of apparatus representing a cost of $19,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over $18,000.

Value of College Property—The property of The State Agricultural College is carefully inventoried in December of each year. The total valuation for each of five years is given:

1891	$144,568.98
1892	176,600.26
1893	187,847.53
1894	197,633.76
1895	207,411.83

The sums named do not represent any portion of the Experiment Station property which, in December, 1895, was inventoried at $27,086.78.

GENERAL INFORMATION.

Admission—The College admits students of both sexes, provided they pass a satisfactory examination in the common branches, namely, Reading, Spelling, Writing, Geography, Grammar, and Arithmetic; and provided they are at least *fifteen years of age.*

The work of the Preparatory year is, in part, a thorough review of the common-school branches. In this year attention is given to American and English prose and verse, Drawing, Elocution, Word Analysis, and Composition.

Candidates for admission should appear for examination on the date announced in the calendar of exercises, preferably at the opening of the College year. Those entering later, or proposing to take advanced work, must be prepared to take a more thorough and prolonged series of examinations.

Regular and Special Courses—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well-qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular courses.

Grades—Each student is expected to maintain a grade of 65, on a scale of 100 as perfect. A student is graded as passed in any study, or branch of manual practice, when the average of his daily progress and his term examination equals 65, on a scale of 100 as perfect.

Failure may be made up, and tested by special examination, or the study may be again taken up with a subsequent class.

Discipline—The discipline of the College is administered by the Faculty according to a system of demerits.

Misconduct, in or out of classes, unexcused absences from any required College exercises, meddling with College property, etc., receive one or more demerits, as the case may seem to require. Parents of students who receive ten demerits will be notified of the students' misconduct by the President; twelve demerits suspend, while fifteen expel the student from the College.

Leaving College—A student will not be allowed to leave College in term time without leave of absence granted by the President of the Faculty; otherwise the student will be liable to *suspension or expulsion*. Temporary leave of absence can be granted by the President, or the officer in charge during his absence. Final separation from the College must be acted upon by the Faculty.

Labor—Labor, two hours each school day, is required of all students not excused for physical disability. This labor (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

Degrees—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

The degree of Master of Science will be conferred upon all graduates of the College who pursue thoroughly, some line of work after graduation, and who submit an acceptable thesis.

The degrees of Civil Engineer and Mechanical Engineer will be conferred upon post-graduate students and others who, by reason of satisfactory work, are entitled to receive them.

Students who complete the work of the Commercial Course will receive a Diploma.

Expenses—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

Two boarding clubs, "The San Juan," and "The Antlers," the membership being about twenty-five in each case, are organized and managed by male students. The yearly expenses of one of these students are as follows:

Club board, 40 weeks, at $2.25 per week	$ 90.00
Room rent, 40 weeks, at .75 per week	30.00
Laundry, 40 weeks, at .50 per week	20.00
Cadet uniform	12.00
Books and stationery	8.00
Incidentals	10.00
Total	$170.00

Students of either sex can secure lodging and board in private families at from $3.50 to $4 per week.

Many students who "*bach*" bring their yearly expenses at College within $125. Other students bring a small edition of home life with them. Brothers and sisters rent a small cottage and begin housekeeping on a modest scale, and with an equitable division of labor. It is rare in such cases that the monthly expense to each member of the little household exceeds $8.

There are numerous ways by which students of either sex may materially lessen their College expenses. An industrious girl, one who really means business, can find desirable quarters in some good home and make her house service render her the price of her board and lodging. There is work for young men—work which will bring him the wherewith to meet a not inconsiderable part of his necessary expenses—if he is willing to wear a laborer's clothes and soil his hands in doing something useful.

The College is an employer of student labor to a limited extent. In the year just closed our students received nearly $700 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Students are counseled to a provident use of their money. There are those who spend money thoughtlessly and uselessly, but their number is not considerable. The surroundings of the College are such as favor the practice of economy. The pleasures in which most students indulge are simple, harmless, and inexpensive. The student's expense account is not forced beyond proper limits by reason of customs in vogue among his fellow-students or by attractions of questionable repute brought within reach of his College life.

State Experiment Stations—The Central Station is located at the College, Fort Collins, Larimer County, Colorado. Five Sub-Stations are provided for, three of which are in operation. They are the San Luis Valley Station, at Monte Vista, Rio Grande County; the Arkansas Valley Station, at Rocky Ford, Otero County; and the Rain-Belt Station, at Cheyenne Wells, Cheyenne County. The Divide Station, at Monument, El Paso County, has been discontinued temporarily. The other station, located in Delta County, has not yet been put in operation.

This department was created in acceptance of the conditions of the Hatch Act, and the work has been arranged in conformity with its provisions.

Bulletins are issued quarterly, or oftener, and reports annually. The former are distributed to those who request them as long as the editions last.

EXAMINATIONS FOR ENTRANCE.

Examinations for admission to the Sub-Freshman class are as follows:—

In *Reading*, candidates must be able to read understandingly, and with proper accent and emphasis.

In *Writing* and *Orthography*, they must be able to write from dictation, sentences from standard pieces of English literature, both prose and poetry, sufficient in number to test their qualifications.

Candidates will also be required to pass examinations in *Arithmetic*, *Grammar*, and *Descriptive Geography.*

Candidates for advanced classes or work must be examined on all previous work, or bring certificates of standing from schools having an equivalent grade of work.

Those desiring to enter the Preparatory class must show some knowledge of Grammar, and be examined in Arithmetic, as far as interest, and in Descriptive Geography. They must show a general knowledge sufficient to enable them to take up the work.

Specimen questions follow, so that candidates may gain an idea as to what will be required upon presenting themselves for entrance to the Sub-Freshman class.

Similarly thorough examinations will be made for admission to higher classes in all subjects completed by them:

ARITHMETIC.

1. Explain the process of "*carrying*" in addition and in multiplication, and give reasons.

Explain the method of testing additions and multiplications by "*casting out nines*," and give reasons.

Show how to prove subtractions and divisions and give reasons.

2. Define fraction, common fraction, improper fraction, and decimal fraction. Give an example of each. Show how to add common fractions and give reasons for the process; also how to reduce common fractions to equivalent decimal fractions, giving reasons for the process.

3. The number of cubic inches in a bushel is 2,150.4. Find the capacity, in bushels, of a bin 16 ft., 4 inches by 12 ft., 3 inches by 30 ft.

A gallon contains 231 cubic inches. Find how many liquid quarts are equivalent to a bushel, carrying result to two decimal places.

4. Calculate the value of a note to-day. The note is for $502.76, bears date May 1, 1893, is subject to annual interest at 8 per cent. per annum, and the following payments have been made upon it: Dec. 10, 1893, $90; Jan. 13, 1895, $175; and June 1, 1896, $200.

SPELLING.

1. For *centuries philosophers* and *statesmen* who could look beyond the *rivalries* and *contentions* of the moment have hoped for the *coming* of a time when reason should be *substituted* for force in the *settlement* of *international differences*.

2. Before *crusading* times the *Venetians monopolized* the *carrying-trade* between East and West, and it is easy to see how the small and *precious wares* of which their *cargoes chiefly consisted—stuffs* and *jewels, ivory, metal, wooden carvings*, and *ecclesiastical ornaments*—gave lessons in *decorative design* even to the far north of Europe.

3. The *immediate vicinity* of the *Colorado Agricultural College* is *favorable* to the study of *Botany* and *Geology*.

4. It is good to *recognize* that the object of all true *civilization* is that a man's house, rich or poor, shall be his castle and not his dime *museum*.

5. As a *political incident* the *importance* of this battle can *scarcely* be *overestimated*.

6. Thus was the battle won. What had *preceded* was the *preliminary maneuvering* to obtain a great *tactical advantage*. What *followed* was the *culling* of the *fruits* of *victory already achieved*.

7. The *industrial revolution* that is now going on in *Japan* is quite as *remarkable* as the *political revolution* that *occurred there thirty* years ago, and *equally important* to the rest of the world.

8. The *Japanese mercantile marine* has only been in *existence* for a little over a *quarter* of a *century*.

9. The *illustrations* in this *catalogue serve* to show some of the *surroundings* of the College.

10. The *apparatus described* was *discarded* as being too *complicated*.

GRAMMAR.

1. What is a sentence? What is the subject of a sentence? The predicate of a sentence?

2. Give an example of a pronoun. What is an adjective? Classify nouns and give examples of each.

3. Do the names of the days of the week begin with capital letters? Of the months? Of the seasons?

4. What is a verb? Define a phrase. Give a sentence illustrating a compound predicate.

5. Parse each word in the following sentence:

"An idle brain is the devil's workshop."

6. Analyze the following sentence:

"Shakespeare, the great dramatist, was careless of his literary reputation."

7. What is a copula? Why so called? Define and illustrate an attribute complement.

8. Give rules for the use of the period.

9. What are the common endings of participles? Illustrate two uses of the infinitive.

10. What is a direct quotation? What is an independent clause? When is the comma used?

GEOGRAPHY.

1. What is geography?

2. What is the shape of the earth? How many and what motions has it?

3. To what is the change of seasons due?

4. What is Latitude? Longitude?

5. Define shore, coast, peninsula, and cape.

6. Name the capitals of the following states: Rhode Island, Pennsylvania, Virginia, Missouri, Michigan, Wisconsin, Florida, Iowa, and Texas.

7. What states raise cotton? sugar cane?

Which are the large producers of gold and silver?

8. Locate the following places: Madrid, Smyrna, Cairo, Tokio, Canton, Liverpool, Honolulu, Niagara Falls, and Yellowstone Park.

9. Describe Cuba as to size, situation, climate, productions, and inhabitants.

10. Locate the following rivers, and tell in what general direction each flows and into what body of water: Mississippi, St. Lawrence, Amazon, Rhine, and Nile.

LOCATION AND HISTORY.

Location—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer county, which is one of the most prosperous agricultural counties in the State. The town contains 3,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of the Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light; and its sidewalks are exclusively made of excellent flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado Central Railroad are its buildings and the farm. Visitors are always welcome. They find the town accessible by four trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights, and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

History—The origin of the State Agricultural College of Colorado, like that of its sister institutions in other States, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, "*a college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning* *as are related to agriculture and the mechanic arts, in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."*

This act gave the College an endowment of 90,000 acres of land. From this source the College now receives an annual income of nearly $5,000.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The present levy of one-sixth of a mill is by order of the State Board of Equalization. After the present fiscal year, the one-fifth mill levy will be restored. The corner-stone of the Main College Building was laid July 27, 1878. This building was completed and ready for occupancy early in the following year.

The Legislature, in addition to providing for the support of the College by the mill tax, before named, has made the following named special appropriations:

Year.	Amount.	For What Purpose.
1881	$ 5,000	College Dormitory
1883	10,000	Mechanic Shop
1889	18,000	Extension of Main Building
1893	6,500	Sewer System
1895	10,000	Additions to Buildings

The State Experiment Stations are intimately connected with the College, and are under the control of its governing board. These stations, five in number, owe their existence to the acceptance, by the State, of the provisions of the Congressional Act, better known as the "Hatch Act," of 1888. The College receives $15,000 a year from the Treasury of the United States for the performance of the experimental work required of the stations.

The College also receives support from the General Government under the provisions of an Act of Congress, passed August 30, 1890, known as the "Morrill Bill." The first annual payment from this source was $15,000. The act provides that this sum shall be increased $1,000 yearly until it reaches $25,000, when it shall become permanent.

The probable annual revenue of the College, for the fiscal year ending November 30, 1896, and the sources whence it will be derived are herewith shown:

1. Land Income Fund, derived from interest on money received from sales of land donated by the General Government, and rents of leased lands not yet sold, about $3,750.

2. "Hatch Act," support of the United States Experiment Stations, $15,000.

3. United States Fund, "Morrill Bill," $22,000. (This will ultimately reach $25,000 per annum.)

4. Special Fund, derived from sale of stock, farm products, and the like (estimate based upon the average for a number of years)—$2,000.

5. State Tax Fund, one-sixth of a mill on all the taxable property of the State, about $32,000.

Yearly receipts from all sources, given approximately, $74,750.

Prior to 1887, but one course of study was pursued by students. Since that date the course has been uniform up to the close of the Sophomore year, and at that point has been differentiated. The following-named courses, from which students can make choice, all lead to the degree of Bachelor of Science: Agricultural Course, Mechanical Engineering Course, Civil and Irrigation Engineering Course, Ladies' Course, and Commercial Course. There is also provision made for a "Short Course in Agriculture," but no degree is conferred upon those who complete it.

The enrollment of students and the number of graduates for each year since the opening of the College, are as follows:

Years.	Males.	Females.	Total.	Graduates.
1880	14	11	25	0
1881	35	22	57	0
1882	49	32	81	0
1883	50	31	81	0
1884	40	37	77	3
1885	50	46	96	6
1886	45	42	87	1
1887	63	42	105	4
1888	71	38	109	4
1889	73	34	107	2
1890	56	18	74	9
1891	77	29	106	3
1892	101	45	146	7
1893	135	44	179	7
1894	142	56	198	7
1895	164	66	230	13
1896	161	71	232	..

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, English and Sociology, Domestic Economy, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, Greek, German, French, Oratory, Physical Culture, and Vocal Music.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common school, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those sciences and arts which bear directly upon *agriculture and kindred industrial pursuits.*"

CALENDAR OF EXERCISES.

1896-1897.

Entrance Examinations	Monday, August 31, 1896
Registration of Students	Monday, August 31, 1896
Fall Term begins	Tuesday, September 1, 1896
Fall Term closes	Wednesday, November 25, 1896
Winter Term begins	Monday, November 30, 1896
Holiday Recess begins	Thursday, December 24, 1896
Holiday Recess closes	Saturday, January 2, 1897
Winter Term closes	Friday, March 5, 1897
Spring Term begins	Monday, March 8, 1897
Commencement Exercises	Thursday, June 3, 1897
Baccalaureate Address	Sunday, May 30, 1897
State Board of Agriculture meets	Wednesday, June 2, 1897

CALENDAR.

1896-1897.

SEPTEMBER—1896.

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OCTOBER—1896.

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NOVEMBER—1896.

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DECEMBER—1896.

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JANUARY—1897.

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FEBRUARY—1897.

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CALENDAR.

1896-1897.

SEPTEMBER—1896.

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OCTOBER—1896.

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NOVEMBER—1896.

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DECEMBER—1896.

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FEBRUARY—1897.

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JUNE—1897.

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JULY—1897.

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AUGUST—1897.

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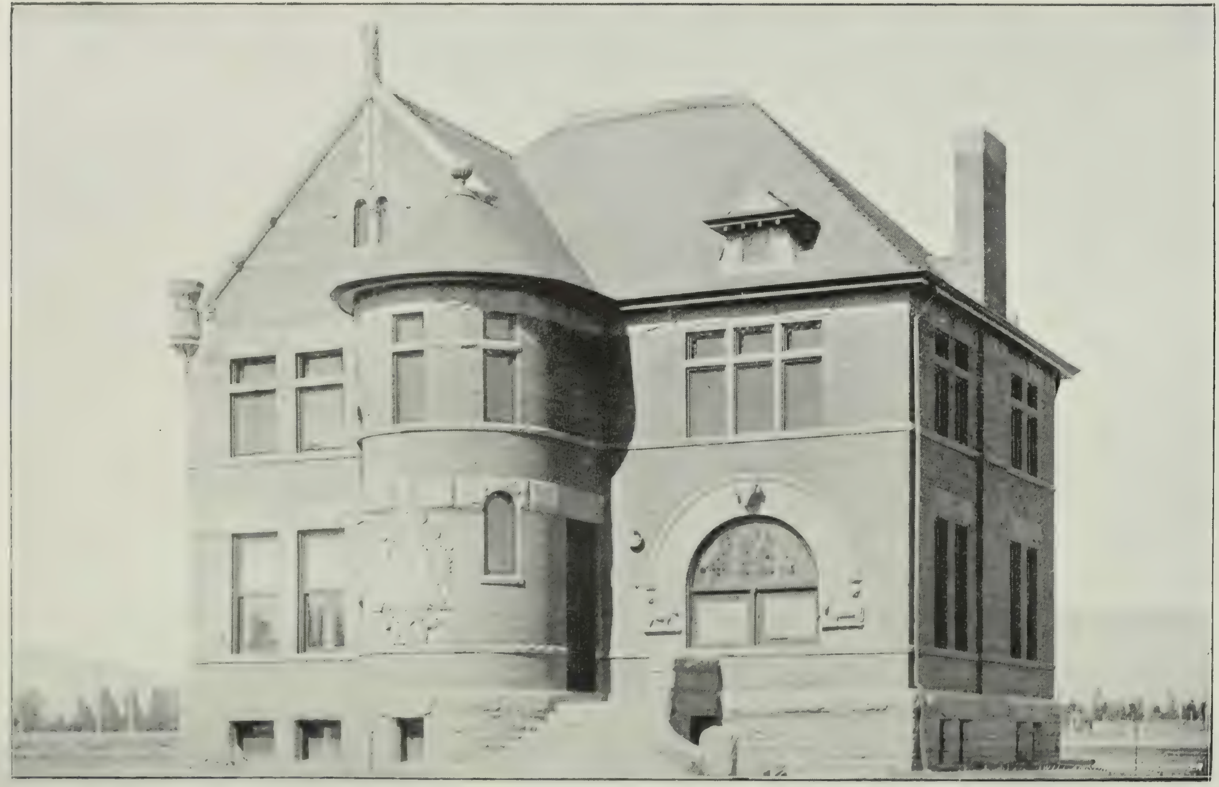
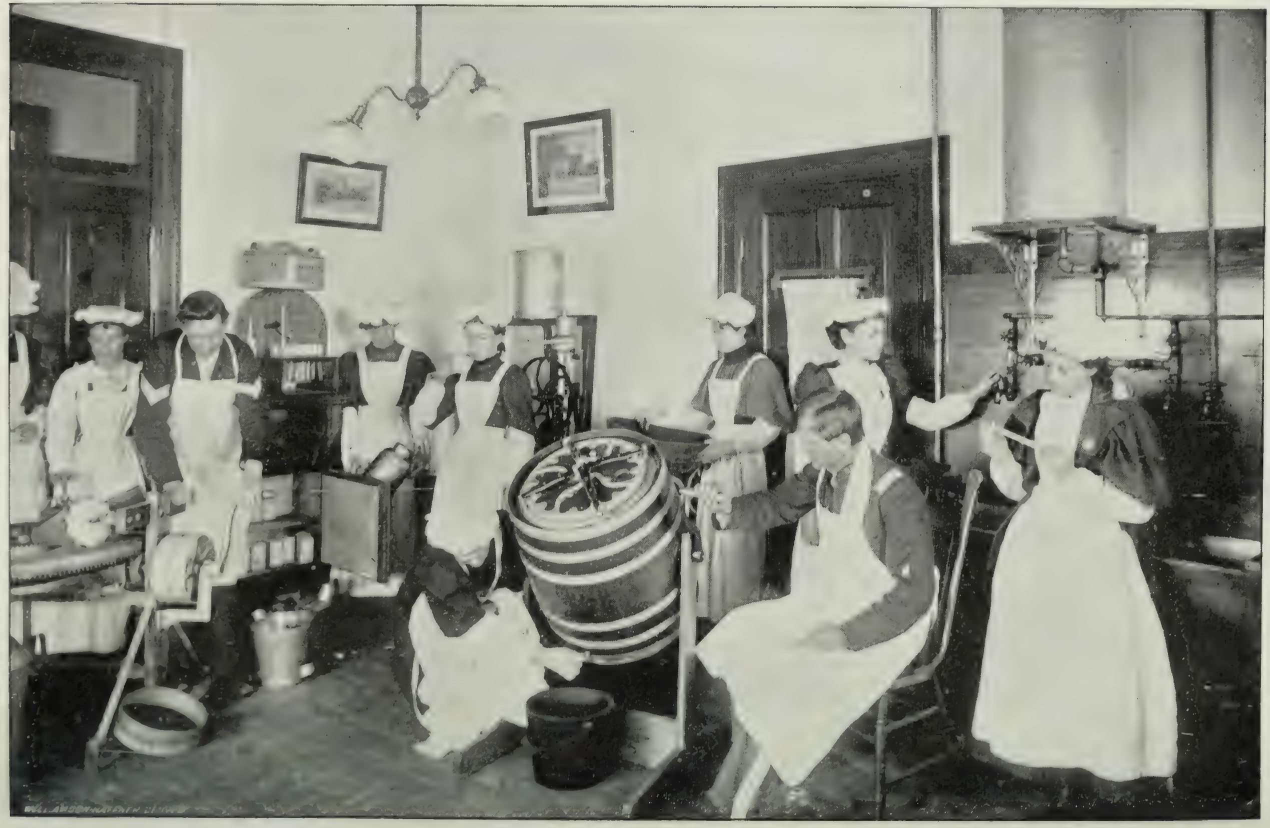
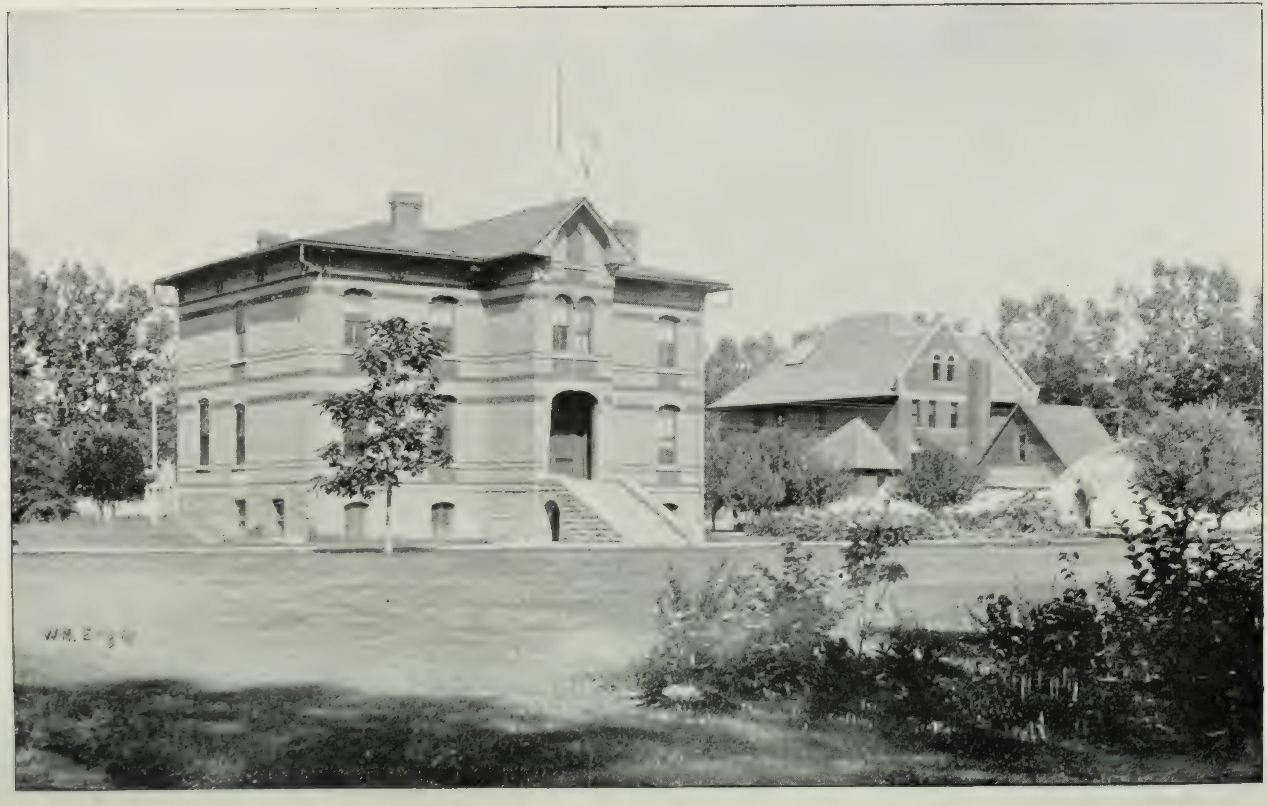


AGRICULTURAL HALL.

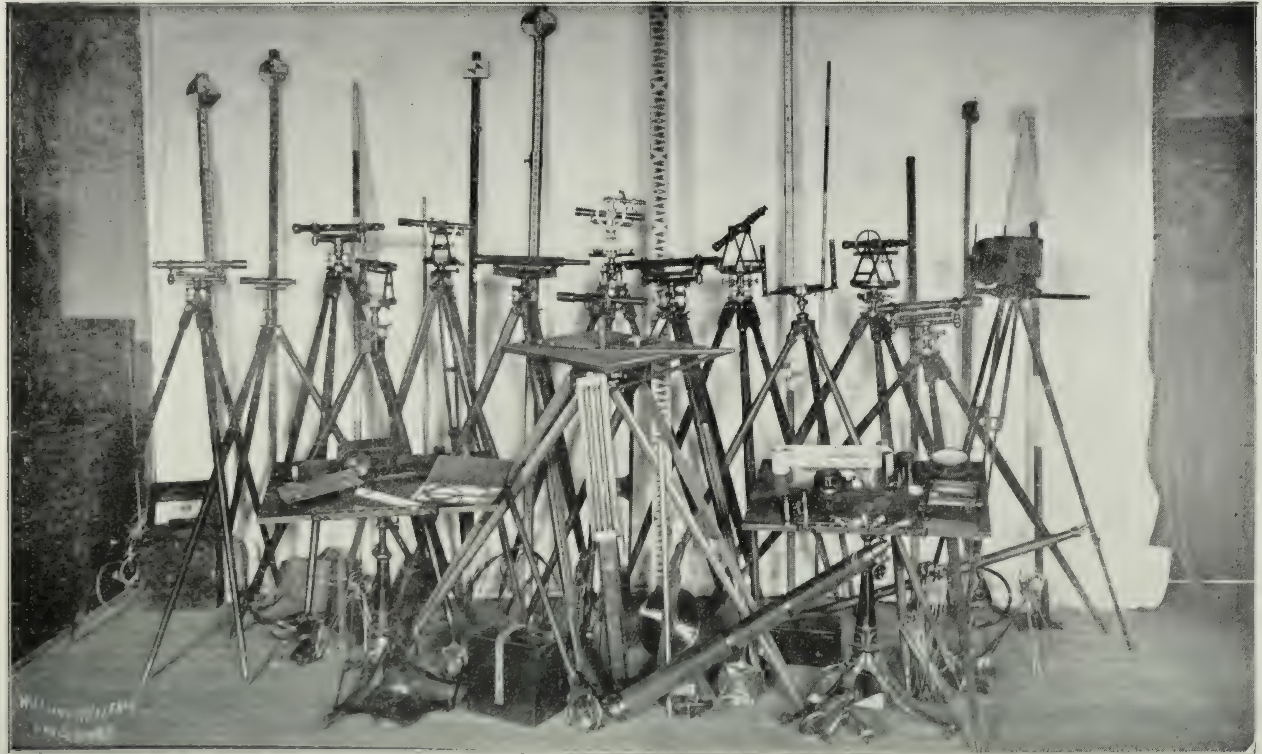
UNIV



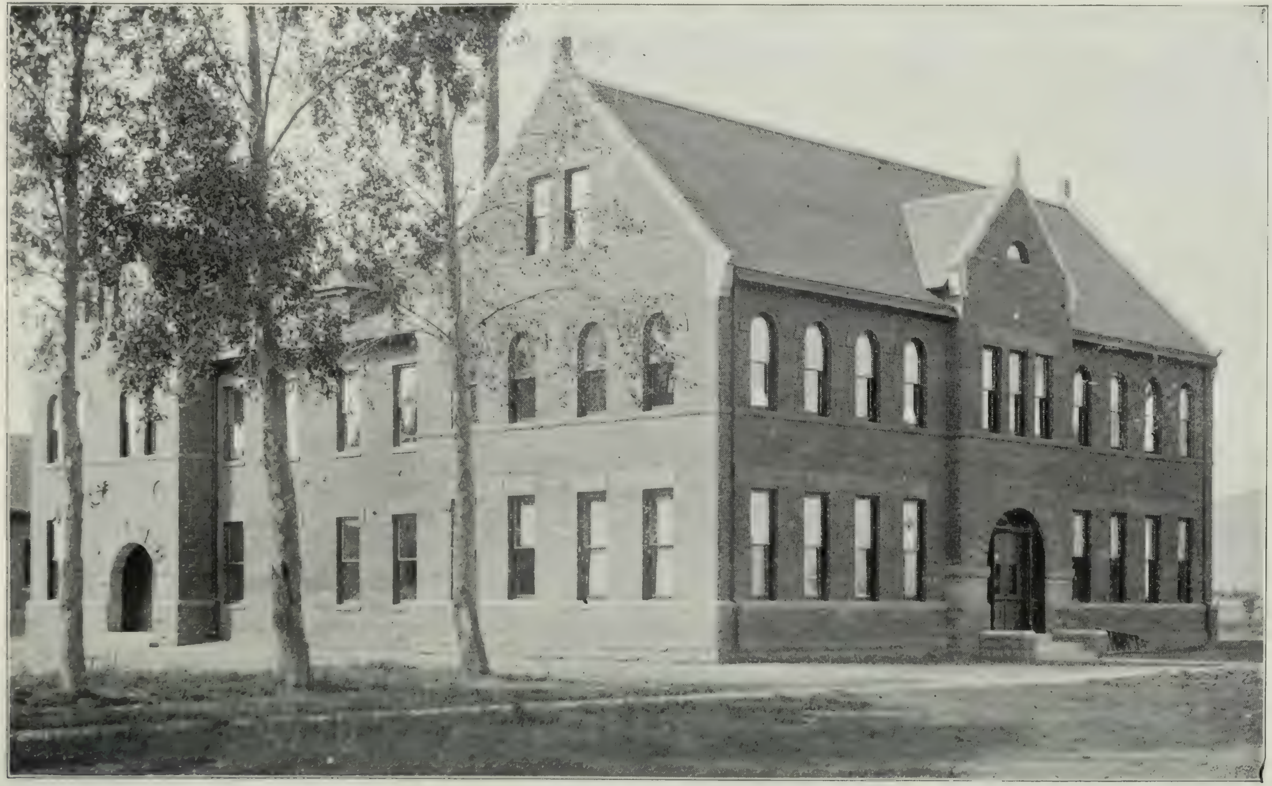
LABORATORY PRACTICE IN DAIRYING.



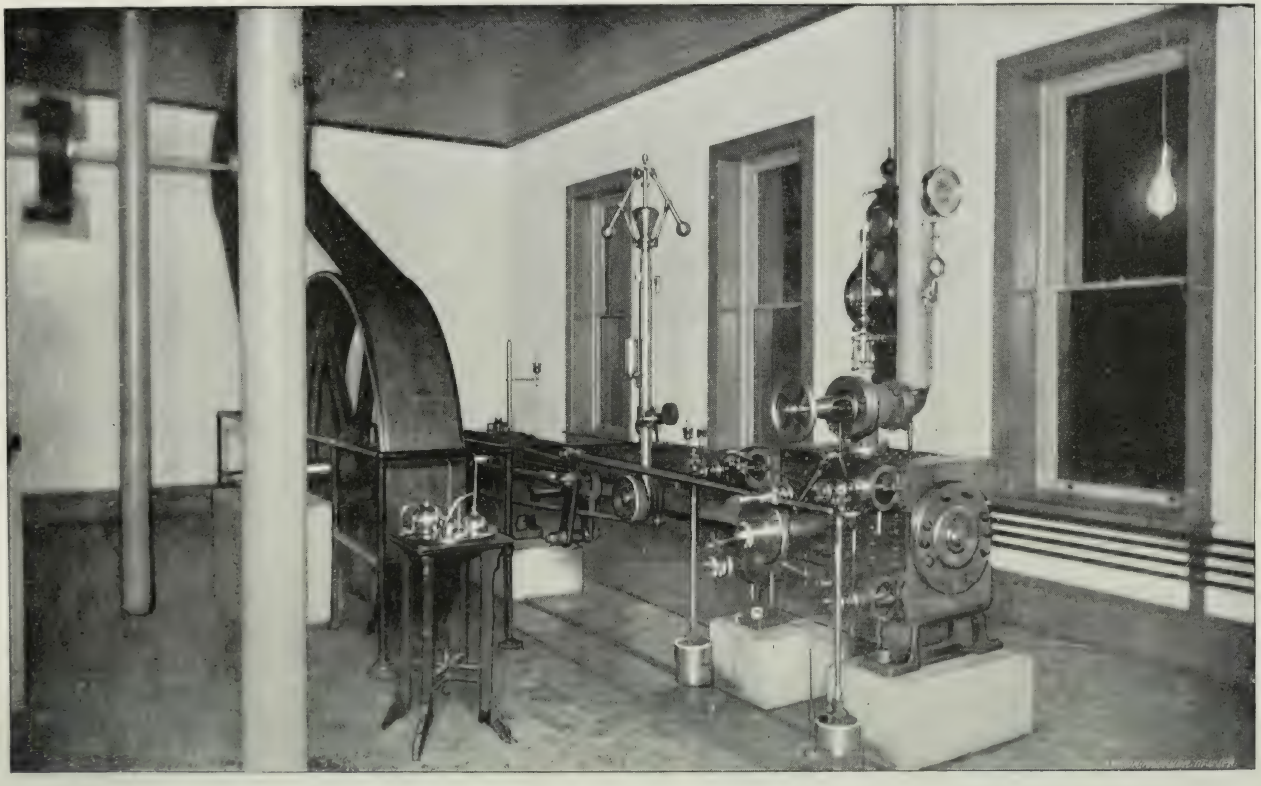
CIVIL AND IRRIGATION ENGINEERING BUILDING.



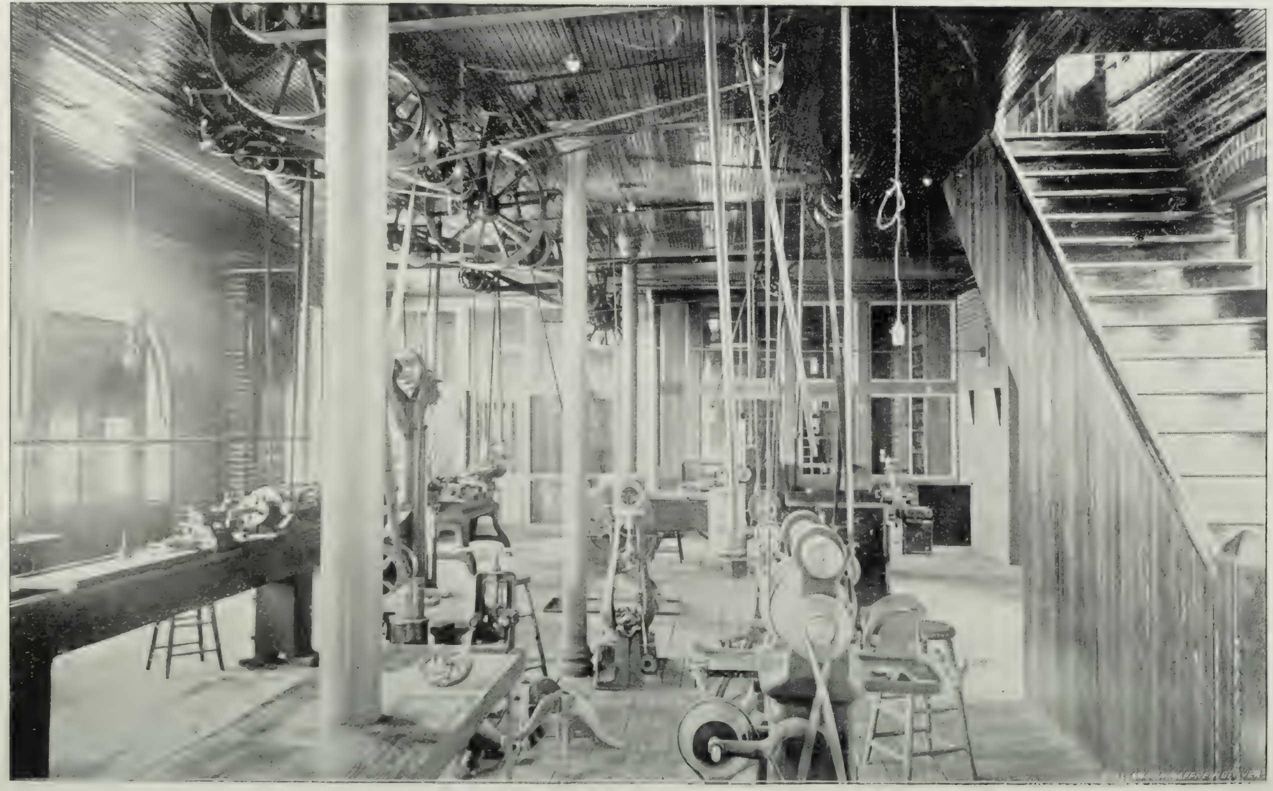
SURVEYING AND ENGINEERING INSTRUMENTS



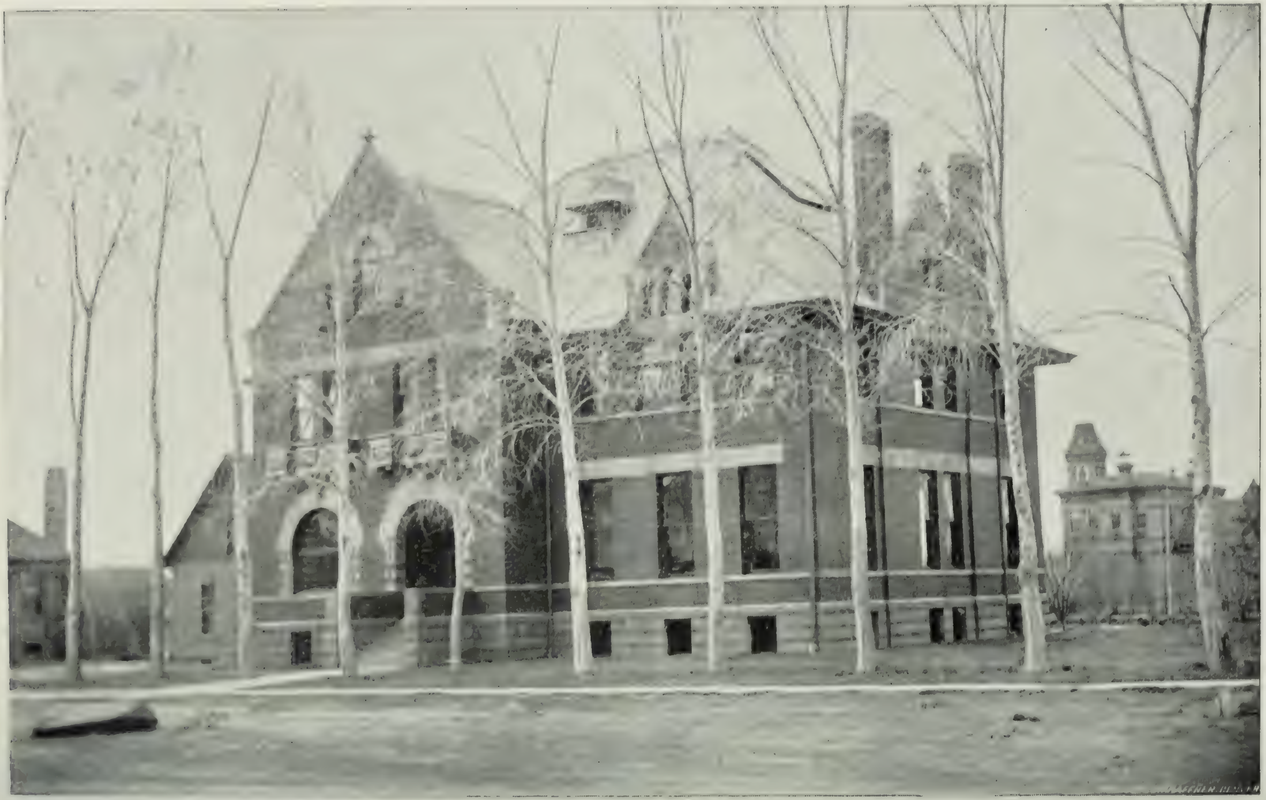
MECHANICAL ENGINEERING BUILDING.



ENGINE ROOM -DEPARTMENT OF MECHANICAL ENGINEERING.



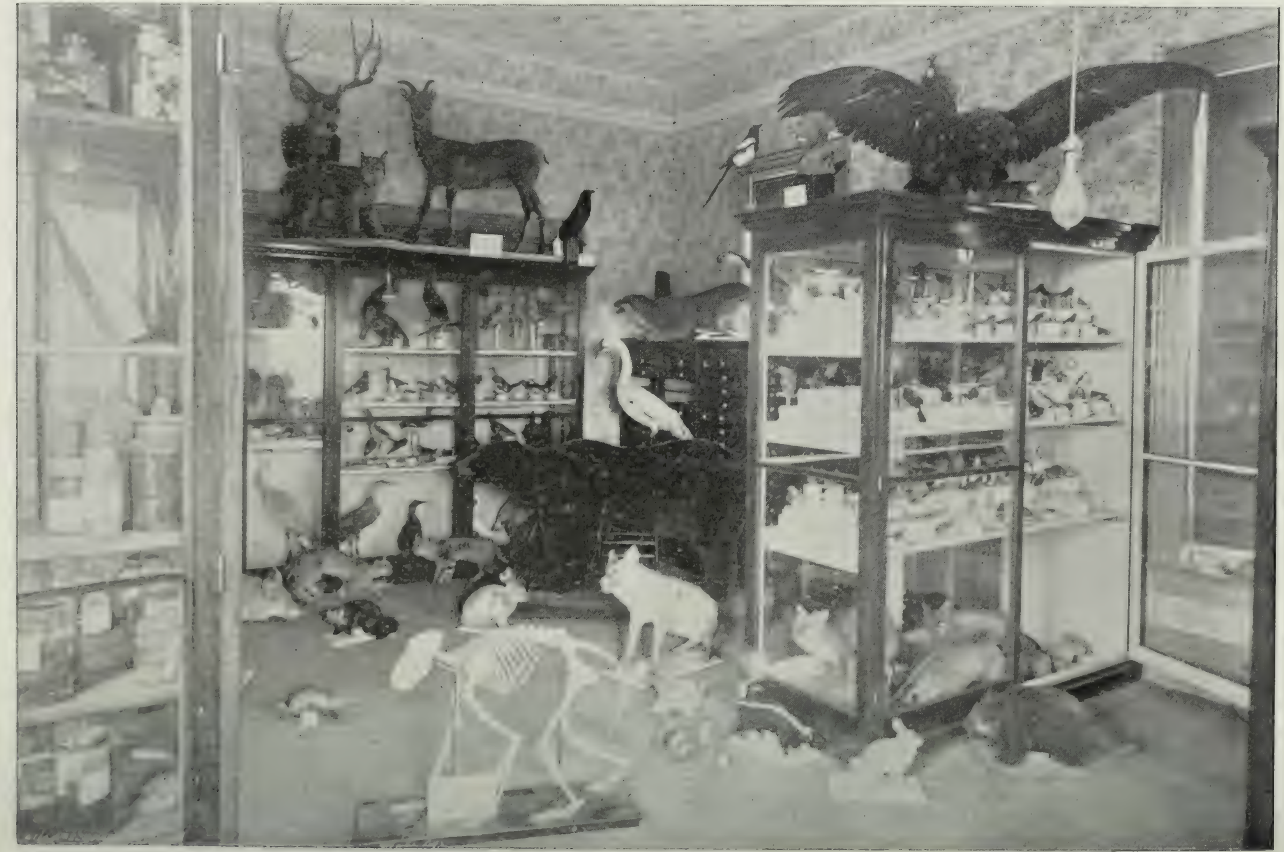
MACHINE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.



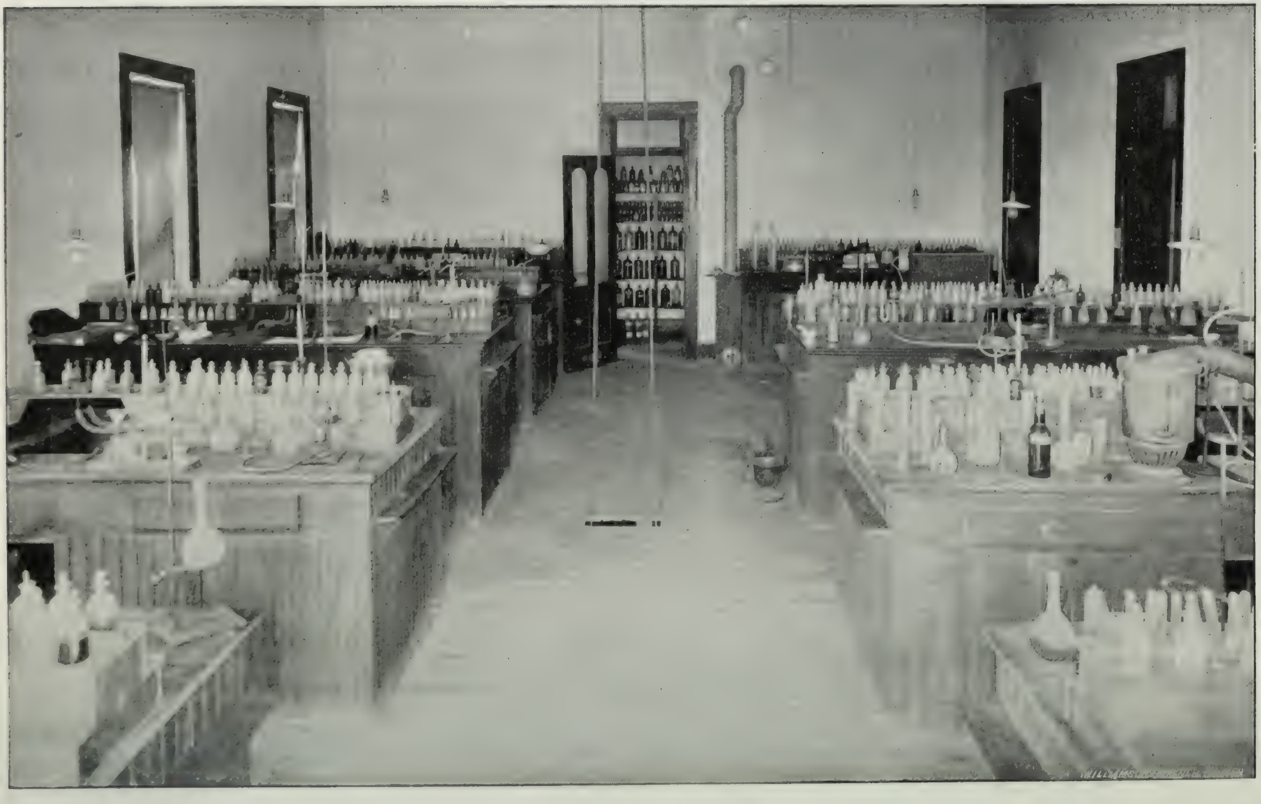
HORTICULTURAL HALL.

CLASS IN BOTANY.

PHYSIOLOGICAL LABORATORY.



CORNER OF MUSEUM.

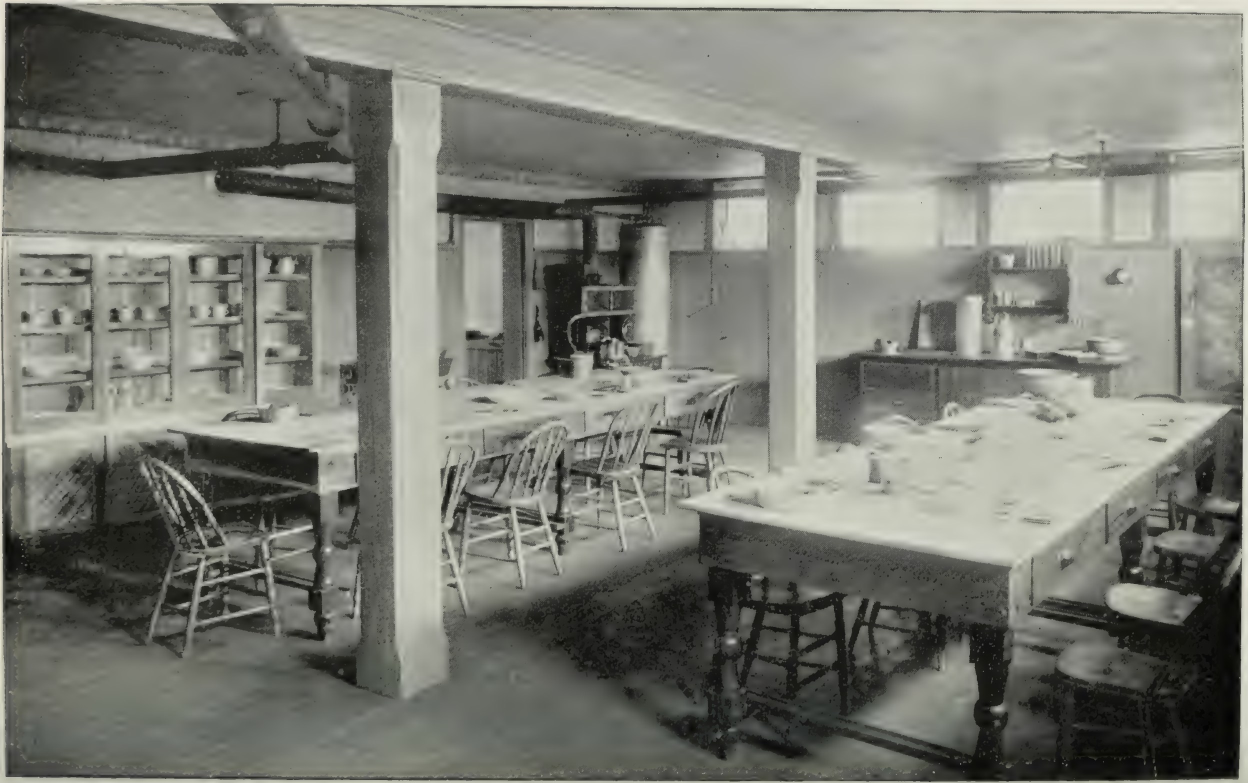


CHEMICAL LABORATORY.

MILITARY COMPANIES.

COMMISSIONED OFFICERS, MILITARY COMPANIES.

SEWING CLASS—DEPARTMENT OF DOMESTIC ECONOMY.



KITCHEN—DEPARTMENT OF DOMESTIC ECONOMY.

COOKING CLASS—DEPARTMENT OF DOMESTIC ECONOMY.

CORNER OF LIBRARY.

REGISTER

OF THE

OFFICERS AND STUDENTS

OF

The State Agricultural College

FORT COLLINS, COLORADO

* * *

Courses of Study
and General Information

1896-1897

* * *

Published by The State Agricultural College
Fort Collins, Colorado
1897

The Smith-Brooks Printing Co.,
Denver, Colo.
1897.

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⁂

	POST-OFFICE	TERM EXPIRES
		1899
HON. JOSEPH S. McCLELLAND	*Fort Collins*	1899
HON. JAMES L. CHATFIELD	*Gypsum*	1901
HON. A. LINDSLEY KELLOGG	*Rocky Ford*	1901
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HON. P. F. SHARP	*Pueblo*	1905
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P. F. Sharp, B. F. Rockafellow.

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P. F. Sharp, ... J. L. Chatfield.

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THE AGRICULTURAL EXPERIMENT STATION.

FORT COLLINS, COLORADO

⁂

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JOHN J. RYAN, P. F. SHARP.
B. F. ROCKAFELLOW.

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C. S. CRANDALL, M. S.	Horticulturist and Botanist
WILLIAM P. HEADDEN, A. M., Ph. D.	Chemist
L. G. CARPENTER, M. S.	Meteorologist and Irrigation Engineer
C. P. GILLETTE, M. S.	Entomologist
JAMES E. DUBOIS	Secretary
LATHROP M. TAYLOR, B. S.	Stenographer.

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JACOB H. COWEN, B. S.	Horticulturist
CHARLES J. RYAN	Chemist
EMMA A. GILLETTE	Entomologist
ROBT. E. TRIMBLE, B. S.	Meteorologist and Irrigation Engineer

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.... Superintendent
Arkansas Valley Station, Rocky Ford, Colorado.

J. E. PAYNE, M. S. .... Superintendent
Rain-Belt Experiment Station, Cheyenne Wells, Colorado.

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Professor of English and Sociology.

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Professor of Military Science and Tactics.

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JACOB A. CHRISTMAN,
Principal of the Commercial Department.

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FRANK L. WATROUS, *Agriculture.*

JACOB H. COWEN, B. S., *Botany and Horticulture.*

CHARLES J. RYAN, *Chemistry.*

ROBERT E. TRIMBLE, B. S., *Meteorology and Irrigation Engineering.*

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WILLIAM GARBE, *Foundry Practice.*

CHAS. F. MERGELMAN, *Floriculture and Landscape Gardening.*

Librarian.

MARGUERITE E. STRATTON, B. S.

REGISTER OF STUDENTS
AND
GRADUATES.

REGISTER OF STUDENTS.

1896-1897.*

POST GRADUATES.

Fred Alford, B. S., '96	Fort Collins, Colorado
Henry Franklin Alps, B. S., '96	Loveland, Colorado
Alfred Hiram Bungardt, B. S., '96	Kansas City, Missouri
Richard Appleton Maxfield, B. S., '96	Rifle, Colorado
Minnie Effie McLain, B. S., '91	Fort Collins, Colorado
Grafton St. Clair Norman, B. S., '96	Hamilton, Ohio
Albert Moore Ten Eyck, B. S., '93	Brodhead, Wisconsin

(The Agricultural Course of the University of Wisconsin.)

7.

SENIOR CLASS.

May Anna Dievendorf	Buena Vista, Colorado
Bertram Alden Gage	Fort Collins, Colorado
Martha Rose Gilkison	Fort Collins, Colorado
Robert Secrest Gray	Wheatland, Wyoming
Archie Jesse Harris	Fort Collins, Colorado
Ralph Henry Hess	Fort Collins, Colorado
William Ashton Hilton	Loveland, Colorado
Alta Esther Lewis	Timnath, Colorado
Smith Durie Philip	Fort Lupton, Colorado
Anna Laura Picken	Fort Collins, Colorado
Mary Elizabeth Prendergast	Fort Collins, Colorado
David John Richards	Salida, Colorado

12.

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*This record is made prior to the close of the Spring term. The results of the term's work may change the classification somewhat.

JUNIOR CLASS.

Emil Affolter	Longmont, Colorado
Claude Harold Annis	Fort Collins, Colorado
Mabel Carrie Blinn	Charlotte, North Carolina
Herman Overton Brown	Salida, Colorado
Carl Sperry Bungardt	Kansas City, Missouri
Raymond Clinton Calloway	Livermore, Colorado
William Arnett Dickens	Longmont, Colorado
Grace Farrar	Fort Collins, Colorado
Jesse Walter Goodwin	Estes Park, Colorado
Fred Steck Hotchkiss	Hotchkiss, Colorado
Amos Jones	Anaconda, Colorado
James Mifflin Loud	Fort Washakie, Wyoming
Herbert Charles Matthews	Cheyenne, Wyoming
Ella Avery Mead	Greeley, Colorado
Lily May Miller	Fort Collins, Colorado
Robert Lee McConnell	La Veta, Colorado
Andrew Macfarlane	Hebron, Colorado
Bernard Joseph Prendergast	Fort Collins, Colorado
Olin Grafton Reed	Fort Collins, Colorado
John Lawrence Rugh	Fort Collins, Colorado
Linnie May Rutledge	Timnath, Colorado
Alice Ethleen Silcott	Fort Collins, Colorado
Charles Edward Swann	Delta, Colorado
Robert Newton Underwood	Paonia, Colorado
Melvin Demertus Williams	Glenwood Springs, Colorado
Thomas Jefferson Warren	Fort Collins, Colorado
Hoyt Douglas Whipple	Berthoud, Colorado
	27.

SOPHOMORE CLASS.

Lore Edward Alford	Fort Collins, Colorado
Clifford Spencer Atherly	Fort Collins, Colorado
Frank Bear	Salida, Colorado
Aaron Vanderburgh Benson	Loveland, Colorado
Harry Alexander Boyd	Denver, Colorado
Nellie Rowena Brockett	Runnells, Iowa
Richard Turner Calkins	Harris, Colorado
Lee Raymond Cooke	Fort Collins, Colorado
Frank Corbin	Fort Collins, Colorado
Percy Golding-Dwyre	Fort Collins, Colorado
Dudley Golding-Dwyre	Fort Collins, Colorado
Howard Empfield Emigh	Fort Collins, Colorado

Raymond Ramney Fisk	Fort Collins, Colorado
Florence Alice Goodwin	Fort Collins, Colorado
Jessie June Grable	Fort Collins, Colorado
Lewis Clifford Hall	Canon City, Colorado
Frank Milton Harris	Chicago, Illinois
Anna Belle Hawkins	Gower, Missouri
Royal Sheffler Howlett	Trinidad, Colorado
Walter Patrick Hurley	Buena Vista, Colorado
Arthur Delzell Jackson	Sterling, Colorado
Gertrude Frances Kellogg	Rocky Ford, Colorado
Addison Lindsley Kellogg	Rocky Ford, Colorado
William Harrison Kelso	Beaver Creek, Colorado
Hattie Navernna Kitchel	Miramonte, California
William Joseph Littleton	Trinidad, Colorado
Otto Wesley Lannon	San Francisco, California
Newton Webster Matthews	Longmont, Colorado
John Logie McPherson	Fort Collins, Colorado
Charles William Mayers	Littleton, Colorado
Harry Clifford Miller	Hotchkiss, Colorado
Jacob Cornelus Mulder	Maxwell City, New Mexico
Charles Sterling Newell	Berthoud, Colorado
Thorwald Vifold Norgaard	Gypsum, Colorado
Marguerite Prendergast	Fort Collins, Colorado
Charles Benjamin Preston	Fort Collins, Colorado
Olin Southard Proctor	Canon City, Colorado
Annie Daisy Proctor	Canon City, Colorado
James Albert Stump	Canon City, Colorado
William Strever	Berthoud, Colorado
Charles Dell Strever	Berthoud, Colorado
Edward Sharpe Gaige Titus	Ottawa, Kansas
Lulu Viets	Grand Junction, Colorado
Edith Clare Walter	Fort Collins, Colorado
	44.

FRESHMAN CLASS.

Dora Allam	New Windsor, Colorado
Lucy Isabelle Armstrong	Fort Collins, Colorado
Laura Armstrong	Fort Collins, Colorado
Leroy Arnold Baker	Fort Collins, Colorado
Edward Richard Baker	Fort Collins, Colorado
William Howard Bopp	Hotchkiss, Colorado
William Rudolph Breniman	Fort Collins, Colorado
William Henry Brooks	Laporte, Colorado
Luther Dunham Cowan	Evans, Colorado

Clara Mary Cunningham	Fort Collins, Colorado
Mattie Lovilla Curtis	Torrington, Wyoming
Thomas McMurtie Donelson	Coulter, Colorado
Clarence Orie Doolittle	Fort Collins, Colorado
Nellie May Drake	Fort Collins, Colorado
Ida May Frampton	Fort Collins, Colorado
David Rendell Freeman	Sheridan, Wyoming
Stuart Bennett Garbutt	Fort Collins, Colorado
Minot Jay Giddings	Fort Collins, Colorado
Edwin Francis Giddings	Fort Collins, Colorado
William Franklin Godsmark	Sulphur Springs, Colorado
William Martin Golden	Fort Collins, Colorado
Frank Byron Goodwin	Fort Collins, Colorado
Lenore Gunn	Timnath, Colorado
Bertha Hawkins	Loveland, Colorado
Mark Thomas Harned	Livermore, Colorado
Mary Ellen Herring	Laporte, Colorado
Virginia Bates Ish	Fort Collins, Colorado
Grace Kibler	Fort Collins, Colorado
Emily Kibler	Fort Collins, Colorado
Preston King	Toponas, Colorado
Clyde David Lang	Gunnison, Colorado
Frances Amanda Leonard	Fort Collins, Colorado
John Lindenmeier	Laporte, Colorado
Bessie Logan	Scottsburg, New York
Edith Blanche Logan	Scottsburg, New York
Jasper Loomis	Fort Collins, Colorado
Roy Sylvenes Lumry	Fort Collins, Colorado
Daisy Matthews	Longmont, Colorado
Dana Quick McComb	La Veta, Colorado
William Ernest Michaud	Laporte, Colorado
Harry Hammond Murray	Fort Collins, Colorado
Signe Agneta Norgaard	Gypsum, Colorado
Elizabeth Ann Nugent	Laporte, Colorado
Robert Ansel Pierce	Fort Collins, Colorado
Lewis Franklin Rader	Canon City, Colorado
Albert Henry Ralph	Fort Collins, Colorado
William Leonard Ryan	Fort Collins, Colorado
Marie Louise Sharp	Denver, Colorado
Amanda Sibley	Canon City, Colorado
Gwendolyn Silcott	Fort Collins, Colorado
Edwin Whitney Smith	Sedalia, Colorado
Maud Ethel Smith	Fort Collins, Colorado
Edith Pearl Smith	Fort Collins, Colorado

Henry Fulton Sturdevant	Steamboat Springs, Colorado
Helen Louise Taft	Laporte, Colorado
Pauline Welles Taft	Laporte, Colorado
Estes Park Taylor	Loveland, Colorado
William Allen Tharp	Laporte, Colorado
Mary Thomas	Salida, Colorado
Grace Halcyon Trittipo	Fishers, Indiana
Oma Mary Veasey	Fort Collins, Colorado
Frances May Warren	Laporte, Colorado
Marion Elnore Warren	Laporte, Colorado
Christina White	Alamosa, Colorado
Clay Charles Wintersteen	Rustic, Colorado
Anna Martha Wood	Eaton, Colorado
	66.

SUB-FRESHMAN CLASS.

Loyal Holmes Abrams	Eagle, Colorado
Frank Albert Aichelman	Brighton, Colorado
James Henderson Andrews	Fort Collins, Colorado
Frank Pierce Arbuckle	Denver, Colorado
Lou McLane Arbuckle	Denver, Colorado
Benjamin Arthur Beezley	Paonia, Colorado
Delphina Isabell Betts	Fort Collins, Colorado
Barton Glen Dale Bishopp	Virginia Dale, Colorado
Bradford Ackley Black	Idaho Springs, Colorado
Albert Loreine Breniman	Fort Collins, Colorado
George Cameron	Fort Collins, Colorado
Lloyd Covell	Laporte, Colorado
Gardner Ranson Cushing	Fort Collins, Colorado
Cynthia Alberta Dix	Garfield, Washington
Mabel Hattie Dion	Fort Collins, Colorado
Harry Dean Edwards	Paonia, Colorado
Ethel Farrar	Fort Collins, Colorado
Martin Ellis Farrar	Fort Collins, Colorado
Howard Joshua Faulkner	Fort Collins, Colorado
George Fitzsimmons	Salida, Colorado
Martha Reeves Ford	Rexford, Kansas
Amanda Amelia Fry	Fort Collins, Colorado
Ralph Melvin Gallup	Buena Vista, Colorado
Okey Joseph Gregg	Canon City, Colorado
Fred Andrew Hagus	Brighton, Colorado
Ida May Hart	Fort Collins, Colorado
Curtis Thomas Hilliard	Fort Collins, Colorado
George Henry Hook	Sulphur Springs, Colorado

Ross Dalbey Howard....................Fort Collins, Colorado
Mary Pauline Jensen....................Fort Collins, Colorado
Elizabeth May Kelley....................Fort Collins, Colorado
Emma Elizabeth Kern..................New Windsor, Colorado
Blanch Bee Kerrick.....................Fort Collins, Colorado
William Garfield Lewis.......................Timnath, Colorado
Jessie Josephine Loomis..................Fort Collins, Colorado
Cyrus Erle McComb..........................La Veta, Colorado
Edna Blanch McGraw..........................Bailey, Colorado
Thomas William Metcalfe................Fort Collins, Colorado
Dwight Mandeville.......................Fort Collins, Colorado
Neils Epperson Norgaard....................Gypsum, Colorado
Samuel Ralph Piatt......................Fort Collins, Colorado
Robert Bruce Poore......................Fort Collins, Colorado
Arthur Elsworth Pratt...................Fort Collins, Colorado
Nellie May Ralph.......................Fort Collins, Colorado
Fred Wilmot Richards...................Fort Collins, Colorado
Augusta Elizabeth Rohling..............Fort Collins, Colorado
Charles William Rust............................Rico, Colorado
Stephen Fletcher Sims.......................Fowler, Colorado
Daisy Marie Smith......................Fort Collins, Colorado
Glyn Buell Stannard....................Fort Collins, Colorado
Clarence Eastman Stratton....................Salida, Colorado
Frank William Sweeney.................Fort Collins, Colorado
Lloyd Edward Temple...................Fort Collins, Colorado
William Albert Thomas.................Fort Collins, Colorado
Lily May Thomas........................Fort Collins, Colorado
Ethel Katherine Trimble................Fort Collins, Colorado
Hattie Estella Vanderhoof..............Fort Collins, Colorado
Irwin Walker Veasey....................Fort Collins, Colorado
Jennie May Welch....................New Windsor, Colorado
Eva Cordelia Welch..................New Windsor, Colorado
Franklin Earl Williams...............New Windsor, Colorado
Bert Wright.........................Idaho Springs, Colorado
Nellie May Young......................Fort Collins, Colorado

63.

PREPARATORY CLASS.

Fred Rankin Akers......................Fort Collins, Colorado
Frances Dellow Brentlinger..................Denver, Colorado
Arthur Chester Burnett..................Fort Collins, Colorado
Charles Sumner Clemens.................Fort Collins, Colorado
Charles Detro..........................Fort Collins, Colorado
William Andrew Dougherty..............Fort Collins, Colorado

Harriet Jennie Garrett	Fort Collins, Colorado
Vincent Alvin Garrett	Fort Collins, Colorado
Herbert Ross Garrett	Fort Collins, Colorado
Colbert George	Denver, Colorado
Arthur George Hopkins	Lafayette, Colorado
Antoine Jacob	Conejos, Colorado
Wallace Hazard Jones	Fort Collins, Colorado
Mabel Lillian Lonsdale	Fort Collins, Colorado
Paul Timothy Michaud	Fort Collins, Colorado
Robert Miller	Fort Collins, Colorado
Carleton Ozias	Fort Collins, Colorado
Myrtle Pearl Phillips	Fort Collins, Colorado
Hugh Stewart	Paonia, Colorado
Robert Dwight Sharp	Denver, Colorado
Eunice Lucretia Sargent	Fortuna, California
Constantia Meryle Sargent	Fortuna, California
Charles Ullery	Fort Collins, Colorado

23.

COMMERCIAL DEPARTMENT—JUNIOR CLASS.

Charles Ludvic Arnell	Alamosa, Colorado
Ray Jasper Baker	Fort Collins, Colorado
Frank Otis Barlow	Livermore, Colorado
Walter Hugh Beach	Fort Collins, Colorado
Courtney Bishop	Agate, Colorado
John Edward Brooks	Laporte, Colorado
Frederick William Brose	Fort Collins, Colorado
Clarence McKillip Buck	Bonanza, Colorado
Pearl Almira Burnett	Fort Collins, Colorado
Maggie Leon Buttorff	Fort Collins, Colorado
Harry Hersey Cannon	Lafayette. Colorado
Lee Bailey Carrel	Eaton, Colorado
Charles Andrew Coleman	Longmont, Colorado
Martha Anna Davis	Timnath, Colorado
Vera Annie Davy	Fort Collins, Colorado
Gertrude Sarah Dix	Fort Collins, Colorado
William Azariah Doty	New Windsor, Colorado
Frank Augustus Dudrow	Longmont, Colorado
Charles Golding-Dwyre, Jr	Fort Collins, Colorado
Grace Elliott	Timnath, Colorado
Charles Roy Emigh	Fort Collins, Colorado
Frank Louis Garnick	Fort Collins, Colorado
Richard Earl Hammond	Fort Collins, Colorado
Alfred Hathaway	Salida, Colorado

Agnes Louise Hawley	Fort Collins, Colorado
Pearl Hays	Loveland, Colorado
William Ralston Headden	Fort Collins, Colorado
Ernest Carl Herlow	Santa Fe, New Mexico
Clara Ella Herner	Fort Collins, Colorado
Winfield Eugene Holmes	Fort Collins, Colorado
Jacob Edward Horner	Fort Collins, Colorado
Edgar Alvinza Hotchkiss	Colona, Colorado
Fred Kirk Huffman	Fort Collins, Colorado
Herbert Heath Huffman	Fort Collins, Colorado
George Franklin Kern	New Windsor, Colorado
Noble Lane	Laporte, Colorado
Myrtle Viola Larsen	Fort Collins, Colorado
Stephen Goodwin Lewis	Timnath, Colorado
Ada Livernash	Fort Collins, Colorado
Amelia Miller Love	Kirk, Colorado
Frank Haynes Lonsdale	Fort Collins, Colorado
Francis Virgil Le Roy McCandless	Florence, Colorado
William Henry McClure	Canon City, Colorado
Harry Otto McCullough	Gunnison, Colorado
Alanson Richard McGraw	Bailey, Colorado
Harvey Rollin Maltby	Rocky Ford, Colorado
William Thomas Mayfield	Longmont, Colorado
Joseph Metcalf	Letcher, South Dakota
James McKean Moore	Fort Collins, Colorado
Lena May Morrison	Fort Collins, Colorado
William Miller Mosman	Fort Collins, Colorado
Murdoch Grant Nelson	Fort Collins, Colorado
Lizzie May Nicholson	Boulder, Colorado
Hjalmer Willard Norgaard	Gypsum, Colorado
Julius Peter Oleson	Gypsum, Colorado
George Lyman Osborn	Montrose, Colorado
George Watrous Patterson	Fort Collins, Colorado
Josephine Pegg	Fort Collins, Colorado
Ernest Leonard Pell	Niwot, Colorado
Charles Elmer Peterson	Timnath, Colorado
Frank Piatt	Fort Collins, Colorado
Robert James Potter	Gunnison, Colorado
Clarence Powers	Fort Collins, Colorado
Mary Susannah Prendergast	Fort Collins, Colorado
Clara Letitia Preston	Fort Collins, Colorado
John Thomas Richards	Erie, Colorado
Walter Scott	Fort Collins, Colorado
Edwin Augustus Searles	New Windsor, Colorado

David Severance	Greeley, Colorado
Czar Dunning Smith	Idaho Springs, Colorado
Henry William Suiter	Fort Collins, Colorado
Ralph Jefferson Stephenson	Fort Collins, Colorado
Elizabeth Frances Sullivan	Salida, Colorado
Mary Ellen Sweeney	Fort Collins, Colorado
Joseph Henry Tharp	Laporte, Colorado
Rennie Simpson True	Highland Lake, Colorado
George Frank Willard	Kiowa, Colorado
Charles Asa Wills	Fort Collins, Colorado
Bessie Carrie Wood	Fort Collins, Colorado
Augustus Samuel Wood	Eaton, Colorado
Joseph Harris Woods	Fort Collins, Colorado
	81.

IRREGULARS.

Gwendolin Ammons	Denver, Colorado
Bertha Vivien Brooks	Fort Collins, Colorado
Harriet Lillian Flint	Greeley, Colorado
Jeanie Gebbie	Monument, Colorado
Elizabeth Frances Jones	Wilmington, Illinois
Elbert McCreery	Loveland, Colorado
Lulu Mayfield	Longmont, Colorado
Clifford Middleton	New Windsor, Colorado
Mattie Newcomb Shoemaker	Denver, Colorado
Fred William Stover	Fort Collins, Colorado
Minnie Caroline Ten Eyck	Brodhead, Wisconsin
Minnie Myrtle Young	Fort Collins, Colorado
	12.

SUMMARY.

	Male.	*Female.*	*Total.*
Post-Graduates	6	1	7
Seniors	7	5	12
Juniors	21	6	27
Sophomores	34	10	44
Freshmen	33	33	66
Sub-Freshmen	41	22	63
Preparatory Class	17	6	23
Commercial Course	61	20	81
Irregulars	3	9	12
Totals	223	112	335

The students represent fourteen states and one territory, as follows: California, 4; Colorado, 307; Illinois, 2; Indiana, 1; Iowa, 1; Kansas, 2; Missouri, 3; New Mexico, 2; New York, 2; North Carolina, 1; Ohio, 1; South Dakota, 1; Washington, 1; Wisconsin, 2; and Wyoming, 5. Total, 335.

The Colorado students represent twenty-seven counties, as follows: Arapahoe, 14; Boulder, 13; Clear Creek, 3; Chaffee, 11; Conejos, 3; Delta, 8; Dolores, 1; Douglas, 1; Eagle, 6; Elbert, 2; El Paso, 2; Fremont, 10; Garfield, 2; Grand, 3; Gunnison, 3; Huerfano, 3; Larimer, 188; Las Animas, 3; Logan, 1; Mesa, 1; Montrose, 1; Otero, 4; Ouray, 1; Park, 2; Routt, 2; Saguache, 1; and Weld, 18. Total, 307.

LIBRARY
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UNIVERSITY of ILLINOIS

GRADUATES.

1884.

George H. Glover, B. S. (D. V. M., Iowa Agricultural College), Veterinary Surgeon..............Longmont, Colorado
Elizabeth Coy, B. S. (Mrs. James W. Lawrence)...........
.... Fort Collins, Colorado
Leonidas Loomis, B. S., Stockman.........Fort Collins, Colorado

1885.

Cora B. Blinn, B. S., Stenographer.....Charlotte, North Carolina
Edna L. Hice, B. S., Teacher..............Fort Collins, Colorado
Lelia L. Loomis, B. S. (Mrs. T. H. Robertson).............
.....................................Fort Collins, Colorado
Grace Espy Patton, B. S. (M. S., 1897), Professor of English and Sociology, State Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction, 1897——.................................Denver, Colorado
Robert E. Trimble, B. S., Assistant Meteorologist, State Agricultural College of Colorado.....Fort Collins, Colorado
Helen White, B. S. (Mrs. John Rigden)....Fort Collins, Colorado

1886.

Wilbert J. Sickman, B. S. (Clerk of the District Court of Larimer County until 1896)................Phœnix, Arizona

1887.

Eleanor F. Gill, B. S.....................Fort Collins, Colorado
Marguerite E. Stratton, B. S., Librarian, State Agricultural College of Colorado, 1895——.........Fort Collins, Colorado
Lerah S. Stratton, B. S. (Mrs. P. J. McHugh), Librarian, State Agricultural College of Colorado, 1887-1891.....
.....................................Fort Collins, Colorado

Edwin G. Nettleton, B. S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer, Sonora and Sinaloa Canal, Mexico, 1893; Merchant and Engineer ....Nampa, Idaho

1888.

Lewis A. Coffin, B. S., Assistant Chemist, State Agricultural College of Colorado, 1888-1889; Farmer....Boise City, Idaho

Harvey H. Griffin, B. S., Superintendent of the San Luis Valley Experiment Station, 1889-1891; Superintendent Experiment Station........................Aztec, Arizona

Josephine Lee, B. S., Teacher City Schools.....Boulder, Colorado

Genevieve E. McLain, B. S., Professor of History and Geography, State Normal School................Peru, Nebraska

1889.

Lucy Bell, B. S. (Mrs. C. V. Benson).........Loveland, Colorado

Arthur L. Davis, B. S. (M. D., 1895, Gross Medical College, Denver), Physician.....................Denver, Colorado

1890.

Clarence V. Benson, B. S. (LL. B., University of Michigan, 1892; M. S., State Agricultural College of Colorado, 1896), Cashier Bank of Loveland........Loveland, Colorado

Velma V. Benson, B. S. (Mrs. A. Beebe)......Loveland, Colorado

Burt C. Buffum, B. S. (M. S., 1894), Professor of Agriculture and Horticulture, University of Wyoming............ ....Laramie, Wyoming

Charles A. Duncan, B. S., Irrigation Assistant, Agricultural College of South Dakota, 1891; Superintendent of the San Luis Valley Experiment Station, 1893-1896; Farmer .... Timnath, Colorado

Newton C. Garbutt, B. S., Attorney-at-Law, Fort Collins, Colorado

Helen E. Lunn, B. S., Bookeeper..........Fort Collins, Colorado

Harry R. Temple, B. S., Engineer...............Ward, Colorado

Cora B. Thoman, B. S., Principal Preparatory Department, State Agricultural College of Colorado, Fort Collins, Colorado

Mary L. Weaver, B. S. (B. Ph., Ohio State University)...... ....Urbana, Ohio

1891.

Charles R. Evans, B. S., Merchant.........Fort Collins, Colorado

Minnie E. McLain, B. S., Post-Graduate Student........... .... Fort Collins, Colorado

John S. Calkins, B. S., Farmer.................Harris, Colorado

1892.

Charles W. Beach, B. S. (Post-Graduate Student, University of Illinois, 1894), Surveyor and Engineer...Fort Collins, Colorado

Frank Beach, B. S. (M. S., 1896), Superintendent San Luis Valley Experiment Station, 1893-1895; Professor of Agriculture and Irrigation Engineering, Montana State Agricultural College..................Bozeman, Montana

Alice Bell, B. S., Stenographer and Teacher...Fort Collins, Colorado

Samuel Bell, B. S. (M. D., University of Denver, 1896), Resident Physician, St. Luke's Hospital......Denver, Colorado

Don A. Carpenter, B. S., Manager National Pump Company.. Denver, Colorado

Porter J. Preston, B. S., Assistant State Engineer, Colorado, 1893-1896; Civil Engineer.................Lamar, Colorado

Albert J. Sedgwick, B. S., Editor...........South Bend, Indiana

Lewis L. Stimson, B. S., County Surveyor of Weld County, Colorado, and City Engineer..............Greeley, Colorado

Frank H. Thompson, B. S., City Editor, Fort Collins *Express*.....................................Fort Collins, Colorado

1893.

John Bloomfield, B. S., Superintendent and Manager Phyllis Canal ....Nampa, Idaho

Samuel Boothroyd, B. S., Professor of Mathematics and Astronomy, Mount Morris College.......Mount Morris, Illinois

Charles J. Gilkinson, B. S., Agent Colorado Shipping and Commission Company....................Denver, Colorado

*Ida M. Lewis, B. S. (Mrs. T. J. Douglas)......Timnath, Colorado

William J. Ralph, B. S., Deputy Postmaster, Fort Collins, Colorado

Raymond F. Walter, B. S., Surveyor and Engineer... Greeley, Colorado

William W. Willard, B. S., Surveyor and Engineer...Twin Lakes, Colorado

1894.

Philo K. Blinn, B. S., Superintendent Arkansas Valley Experiment Station.....................Rocky Ford, Colorado

Jacob H. Cowen, B. S., Assistant Botanist and Horticulturist, State Agricultural College of Colorado...Fort Collins, Colorado

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*Deceased.

Will H. Fairfield, B. S., Farm Superintendent, University of Wyoming..........................Laramie, Wyoming
Minnie F. Harrington, B. S., Teacher......Fort Collins, Colorado
Herbert S. Kendall, B. S., Superintendent of Experiment Station, 1894-1896, Teacher.................Lander, Wyoming
Celia May Southworth, B. S. (Mrs. Frank Beach), Librarian State Agricultural College of Colorado, 1891-1895...... ....Bozeman, Montana
Harlan Thomas, B. S., Architect...............Denver, Colorado

1895.

Jean B. Balcomb, B. S., Deputy Mineral Surveyor......... ....Puma City, Colorado
Herbert A. Black, B. S., Employé Hallack & Howard Lumber Company............................Denver, Colorado
Edith G. Boothroyd, B. S., Student Training School for Nurses, St. Luke's Hospital.............Denver, Colorado
Henry A. Calkins, B. S., Assistant Engineer Mollie Gibson Mine, 1896; Farmer.......................Harris, Colorado
Edward P. Cooke, B. S., Agent Franklin Square Bible House..................................Des Moines, Iowa
Loren B. Curtis, B. S., Assistant Engineer, Denver Tramway Company ....Denver, Colorado
William F. Gilkison, B. S., Instructor in Mechanical Engineering, University of Wyoming........Laramie, Wyoming
Ella G. Goldsborough, B. S., Stenographer. .Fort Collins, Colorado
Seth C. Lewis, B. S., Farmer.............Fort Collins, Colorado
Edgar A. Mead, B. S., Law Student..........Greeley, Colorado
George W. Nelson, B. S., Superintendent of Mines........... ....British Columbia
Frances C. Schelt, B. S., Teacher..........Fort Collins, Colorado
Walter K. Starbird, B. S., Stockman........Livermore, Colorado

1896.

Fred Alford, B. S., Post-Graduate Student, Fort Collins, Colorado
Henry F. Alps, B. S., Teacher...............Loveland, Colorado
William E. Becker, B. S., Teacher......Poncha Springs, Colorado
Florence J. Boothroyd, B. S., Student Training School for Nurses, St. Luke's Hospital..............Denver, Colorado
Alfred H. Bungardt, B. S., Post-Graduate Student.......... ....Kansas City, Missouri
Allen P. Greenacre, B. S., Instructor Mechanical Department, State Agricultural College of Colorado.......... ....Fort Collins, Colorado

Robinson W. Hawley, B. S., Assistant Canal Superintendent .... Nampa, Idaho

John E. Kiteley, B. S., Dairyman, State Agricultural College of Colorado .... Fort Collins, Colorado

Richard A. Maxfield, B. S., Post-Graduate Student .... Rifle, Colorado

Abner S. McKee, B. S., Fruit Grower .... Paonia, Colorado

Grafton S. Norman, B. S., Post-Graduate Student .... Hamilton, Ohio

Robert W. Sears, B. S., Stockman and Merchant .... Greenhorn, Colorado

ALUMNI ASSOCIATION.

OFFICERS.

President	Marguerite E. Stratton
Vice-President	Philo K. Blinn
Secretary	Allen P. Greenacre
Treasurer	Charles R. Evans

EXECUTIVE COMMITTEE.

President, Vice-President, Secretary,
Jacob H. Cowen. Charles J. Gilkison.

COURSES OF STUDY.

PREPARATORY YEAR.

FIRST TERM.

American Prose	Swinton
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

SECOND TERM.

English Prose	Swinton
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

THIRD TERM.

American and English Verse	Selections
English Analysis and Composition	Reed and Kellogg
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

Military Drill and Physical Culture Daily.

SUB-FRESHMAN YEAR.

FIRST TERM.

Mental Arithmetic	Stoddard
United States History	Montgomery
American Men of Letters	Selections

Freehand Drawing.

Afternoons: Farm.
Domestic Economy.

SECOND TERM.

Algebra	Wentworth
United States History	Montgomery
English Men of Letters	Selections

Freehand Drawing.

Afternoons: Shop.
Domestic Economy.

THIRD TERM.

Algebra	Wentworth
United States History	Montgomery
Civil Government	Townsend

Freehand Drawing.

Afternoons: Garden.
Domestic Economy.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work and selected reading in the College Library are required.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.

All lead to the degree of Bachelor of Science.

FRESHMAN YEAR.

FIRST TERM.

Geometry	Beman and Smith
Agriculture	Gulley
Botany	Gray
General History	Sheldon

Afternoons:
Garden, A., C.
Domestic Economy, L.
Shop, M.

SECOND TERM.

Geometry	Beman and Smith
Carpentry and Joinery	Goss
Composition and Rhetoric	Lockwood
General History	Sheldon

Afternoons:
Shop, A., C., M.
Domestic Economy, L.

THIRD TERM.

Solid Geometry	Beman and Smith
Botany	Gray
Literature	Kellogg

Mechanical Drawing.

Afternoons:
Farm, A., C.
Domestic Economy, L.
Shop, M.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work two afternoons and readings from American Men of Letters and American Orators three afternoons per week.

LIBRARY
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SOPHOMORE YEAR.

FIRST TERM.

Algebra	Wentworth
Rhetoric	Genung
Physiology	Martin

Mechanical Drawing.

Afternoons: { Shop, A., C., M.
Domestic Economy, L.

SECOND TERM.

Trigonometry	Wentworth
Physiology	Martin
Physics	Deschanel
Farm Buildings, A.	Lectures
Household Hygiene, L.	Public Health Essays
Descriptive Geometry, C., M.	Church

Afternoons: { Physiological Laboratory, ½.
Physical Laboratory, ½.

THIRD TERM.

Physics	Deschanel
Surveying, A., C., M.	Hodgman
Domestic Economy, L.	Lectures
Stock Breeding, A.	Warfield
Algebra, A., C., M.	Wentworth
Stenography and Typewriting, L.	Scott-Browne
Ethics, L.	Lectures
Descriptive Geometry, C., M.	Church

Afternoons: { Surveying, A., C., M., ½.
Dairying, L., ½.
Physical Laboratory, A., C., M., L., ½.

Military Drill for the gentlemen and Physical Culture for the ladies daily. Rhetorical work for all students one hour per week; readings from English Men of Letters one hour per week.

AGRICULTURAL COURSE.

JUNIOR YEAR—FIRST TERM.

Stock Feeding	Stewart
Horticulture	Lectures
Physics	Deschanel
Landscape Gardening, ½; Meteorology, ½	Lectures

Afternoons: { Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Physiological Botany	Strasburger
Elementary Geology	Tarr
Zoölogy	Orton

Zoölogical Laboratory.
Afternoons: Botanical Laboratory.

THIRD TERM.

Recent History	McCarthy and Library
Entomology	J. B. Smith
Systematic Geology	Dana
Irrigation Hydraulics	Lectures

Afternoons: { Entomological Laboratory, ⅖.
Farm, ⅗.

Military Drill daily. Rhetorical work one hour per week throughout the course.

AGRICULTURAL COURSE.

SENIOR YEAR—FIRST TERM.

Chemistry	Remsen
Dairying	Gurler
Psychology	Hill
Constitution of the United States	Andrews

Afternoons: Dairying, ⅖. Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Horticulture	Lectures
Agriculture	Lectures
Logic	Gregory

Afternoons: Chemical Laboratory.

THIRD TERM.

Agricultural Chemistry	Johnston—Aikman
Political Economy	Walker
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Chemical Laboratory, ½. Garden, ½.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Foundry Practice	West
Logic	Gregory
Physics	Deschanel
Higher Algebra	Wentworth

Afternoons: { Physical Laboratory, ⅗.
Shop, ⅖.

SECOND TERM.

Boilers and Steam Engine	Wilson—Holmes
Elementary Geology	Tarr
Analytic Geometry	Wentworth
Drawing	Instrumental

Afternoons: Shop.

THIRD TERM.

Drawing	Instrumental
Calculus	Taylor
Elements of Mechanism	Stahl and Woods
Workshop Appliances	Shelley—Rose

Afternoons: Shop.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Drawing	Instrumental
Calculus	Taylor
Chemistry	Remsen
Psychology	Hill

Afternoons:
- Shop, ⅖.
- Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Drawing	Instrumental
Strength of Materials	Merriman
Transmission of Power	Lectures

Afternoons:
- Chemical Laboratory, ⅗.
- Testing Materials, ⅖.

THIRD TERM.

Steam Engineering	Lectures
Special Machines	Lectures
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Steam Engineering Laboratory.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Irrigation Engineering	Wilson and Flynn
Physics	Deschanel
Higher Algebra	Wentworth
Horticulture	Lectures

Afternoons: Physical Laboratory, ⅗.
Horticulture, ⅖.

SECOND TERM.

Higher Surveying	Johnson
Analytic Geometry	Wentworth
Elementary Geology	Tarr
Drawing	Instrumental

Afternoons: Field and Laboratory work in Engineering.

THIRD TERM.

Irrigation Hydraulics	Lectures
Calculus	Taylor
Map and Topographical Drawing	—

Afternoons: Field Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Calculus	Taylor
Chemistry	Remsen
Constitution of the United States	Andrews
Reservoirs and Dams, ½	Lectures
Meteorology, ½	Lectures

Afternoons: Engineering, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Materials of Engineering	Thurston
Logic	Gregory
Drawing	Instrumental

Afternoons: Chemical Laboratory, ⅗.
Testing of Materials, ⅖.

THIRD TERM.

Hydraulics	Lectures
Trusses and Bridges	Merriman
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

LADIES' COURSE.

JUNIOR YEAR—FIRST TERM.

Domestic Economy, Chemistry of Cooking	Richards
Landscape Gardening, ½; Meteorology, ½	Lectures
Physics	Deschanel
Horticulture	Lectures

Afternoons: Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Domestic Economy, Science of Nutrition	Atkinson
Elementary Geology	Tarr
Zoölogy	Orton
Typewriting	Practice

Afternoons: Domestic Economy.

THIRD TERM.

Domestic Economy	Lectures
Geology	Dana
Recent History	McCarthy and Library
Stenography	Scott—Browne

Afternoons: Domestic Economy.

LADIES' COURSE.

SENIOR YEAR—FIRST TERM.

United States Constitution	Andrews
Psychology	Hill
Chemistry	Remsen
Literature	Hawthorne and Lemmon

Afternoons: Library in Literature, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Applied Psychology	Tompkins
Logic	Gregory
Philosophy of History	Andrews

Afternoons: Chemical Laboratory.

THIRD TERM.

Political Economy	Walker
Chemistry of Common Life	Johnston
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Sociology, ½.
Recent History, ½.

Physical Culture throughout the Junior and Senior years.

COMMERCIAL DEPARTMENT.

JUNIOR YEAR—FIRST TERM.

United States History.
Plane Geometry.
Elementary Bookkeeping.
Penmanship.
Commercial Arithmetic and Rapid Calculation.
Spelling.

SECOND TERM.

United States History.
Elementary Algebra.
Composition and Rhetoric.
Advanced Bookkeeping.
Commercial Arithmetic and Rapid Calculation.
Penmanship.

THIRD TERM.

United States History.
Elementary Algebra.
Business Practice and Banking.
Commercial Arithmetic and Rapid Calculation.
Penmanship.
Business Correspondence.

COMMERCIAL DEPARTMENT.

SENIOR YEAR—FIRST TERM.

Rhetoric.
Constitution of the United States.
General History.
Stenography.
Typewriting.

SECOND TERM.

General History.
Plane Geometry.
Stenography.
Typewriting.
Business Law.

THIRD TERM.

Political Economy.
Literature.
Stenography.
Typewriting.
Office Practice.
Business Law.

DEPARTMENTS OF INSTRUCTION.

AGRICULTURE.

By means of intelligent experimental work, conducted on the College Farm and at the Experiment Station, in which student labor is given a prominent place, a very practical training is given.

The authorities are making every effort to provide a thorough course of instruction in the School of Agriculture, designed especially to educate the students for agricultural pursuits and scientific investigations.

Special agricultural work is begun in the Fall term of the Freshman year. In the Sophomore year, farm buildings and farm roads receive attention. In the Spring term of this year, the young men receive instruction in stock-breeding and the ladies take work in dairying.

In the third term of the Junior year, there is further instruction in regard to soils and practical irrigation. Part of the Junior and part of the Senior year are given to the subject of live stock in its various branches; the care and feeding of horses, cattle, sheep, and hogs; the preparation of food, ensilage, soiling, etc.

Dairying is taught, the first term of the Senior year, by means of lectures and recitations in the forenoon. The exercises of the afternoon relate to butter making, milk testing, and the handling of dairy apparatus.

In the third term of the Senior year, the students take up the general subject of Agricultural Chemistry, with special reference to the fertilization and cultivation of crops.

The whole course is illustrated by the experimental work always in progress and is supplemented by daily practical work on the farm and in the laboratory.

The four-year Agricultural Course is designed to give to the student a thorough knowledge of the principles and practices of Agriculture, and at the same time to provide enough training in other branches of learning to furnish a well-rounded education that shall fit him for the general affairs of life.

BOTANY AND HORTICULTURE.

Botany—The study of Botany begins with the Freshman year. The Fall term is devoted mainly to Structural Botany. The plant as an individual is studied as to its parts or organs—the relation each part bears to the whole—the variations in the parts, and the uses they serve. Roots, branches, buds, leaves, flowers, and fruits are placed in the students' hands, and the technical descriptive terms are learned by applying them directly to the plants.

Gray's Lessons is used as text to supplement the instruction from the plants themselves. A few lectures on classification and the relations of plants to each other are given toward the close of the term.

The Spring term of the same year is devoted to Systematic Botany. Dissecting microscopes and necessary tools are furnished and plants are each day supplied for analysis. Students are taught the application of the principles learned during the first term, so that they may understand the methods of determining the names of plants. The great variety of plants at hand enables the student to become familiar with all the leading natural orders. Written descriptions of the plants analyzed are required. Coulter's Manual of Rocky Mountain Botany is the text-book used.

Physiological Botany—In the Winter term of the Junior year, the Agricultural students study vegetable physiology and the minute structure of plants, using as a text-book Strasburger's Practical Botany.

Compound microscopes are supplied and the Botanical laboratory is open to members of the class two hours each afternoon.

An herbarium of native and foreign plants and the green-house furnish material for study.

A portion of this term is devoted to Cryptogamic Botany, special attention being given to rusts, smuts, and mildews injurious to plants.

The laboratory is well equipped with books of reference and with all necessary apparatus and reagents.

Horticulture—Instruction in Horticulture is given by lectures. The first course of thirteen weeks, in the Fall term of the Junior year, deals mainly with methods. Under the general head of vegetable-gardening, the principal topics considered are—the best soil and situation for a garden; manner of laying out a garden; irrigation of garden crops; rotation of crops; methods of planting and management; composts and commercial fertilizers; care of tools; construction, management, and uses of hot-beds and cold-frames; harvesting, marketing, and storing vegetables.

Brief historical notes, and full cultural directions, are given concerning all the vegetable plants commonly grown in gardens.

Small fruit culture is next taken up; each kind is considered in detail as to its history, propagation, cultivation, harvesting, marketing, the best varieties, and the diseases to which it is subject.

Then follows a series of lectures upon methods of plant propagation, including a thorough discussion of budding and grafting.

Plants, tools, and other appliances are provided for class-room use in giving practical illustrations of the subject treated.

A portion of this term is devoted to Forestry. Lectures are given on the gathering and preservation of forest tree seed, the planting of seed, and the care of seedlings; on the value of trees for timber and ornament, for hedges, screens, and shelter belts.

A second course of lectures during the Winter term of the Senior year treats of the theory of Horticulture, and considers in detail the underlying principles of garden practice; lectures are given upon the history of cultivated plants, variation of plants under cultivation, as influenced by climate, latitude, altitude, and general surroundings; cross-fertilization and hybridization. Pomology is then taken up, and the theory and practice of orchard management considered in detail.

Floriculture is also treated on such topics as the construction, heating, and management of green-houses, the propagation, cultivation, and management of greenhouse plants for commercial or private purposes.

Landscape Gardening—One-half of the Fall term of the Junior year is allotted to this study. The general principles of the art are taught by lectures and practical instruction given in the selection and laying out of city and country places. The principal topics are, the selection of a place, the location of buildings, drives, and walks, what to plant and how to plant. The works of Downing and Kemp are used as books of reference.

ZOOLOGY AND ENTOMOLOGY.

Physiology—This subject is taught during the first and second terms of the Sophomore year, Martin's Human Body being used as a text-book. Aside from the daily recitations, students spend two hours a day, during the first half of the second term, in the laboratory, to study human and comparative osteology and histology, and to dissect anaesthetized animals for the purpose of making a careful study of the various organs and tissues.

The laboratory is well-equipped, possessing, among other things, a fine series of mounted skeletons, an expensive manikin (a life-sized model of the human body so dissected as to show nearly every tissue and organ that can be seen in an actual dissection), enlarged *papier mache* models of the eye, ear, brain, and other important parts; also, compound and dissecting microscopes, microtomes, and dissecting instruments.

Zoology—Zoology is taught in the second term of the Junior year in the Agricultural Course and the Ladies' Course. This branch of natural science is taught by means of a text-book and actual demonstrations in the laboratory. Each student is furnished with typical forms of the different branches of the animal kingdom, which he studies carefully, making drawings and taking notes. In this manner the student acquires a practical knowledge of the structure and classification of animals, that he can not obtain by mere study of books.

Microscopes, dissecting tools, and all necessary equipment for laboratory work are furnished free, each student being required to care for his own instruments.

Entomology—Work begins in the third term of the Junior year in the Agricultural Course, and is furthered by the use of a text-book with laboratory work. Each student also gets together and classifies a collection of insects representing all the orders, and follows a few species through all their transformations, taking notes and making drawings and descriptions.

Particular attention is given to the economic features of this study. Those insects known to be injurious are given special attention, and the students are made familiar with their habits and remedies. Students also prepare the principal insecticide substances and apply them for the destruction of insects.

In connection with this department are a good apiary and honey-house, thoroughly equipped with the most modern appliances, and students so desiring are taught and allowed to put into practice all the manipulations of the apiary.

Students taking this study are required to purchase J. B. Smith's Economic Entomology.

CHEMISTRY AND GEOLOGY.

Chemistry—It is the object to give the student an opportunity to acquire a thorough mastery of the elementary principles of chemical science. To attain this object, theory and practice are made to go hand in hand. In the first term of the Senior year the class receives a series of lectures, accompanied by text-book work, upon the general theory of the science, its history and development. In this course of lectures are discussed the subjects of acids, bases and salts, and the principles of chemical philosophy. The natural history, chemical and physical properties of each of the elements are discussed in detail, the whole being illustrated by experiments. While taking this course the student spends two hours each day in the chemical laboratory, repeating the experiments shown in the class-room, and making others which may be suggested, thus familiarizing him with the various forms of compounds, the marked distinctions between the different classes of salts, the use of chemical nomenclature, and the manipulation of apparatus. Practice in the use of the blow-pipe accompanies this work, and an insight into determinative minerology is thus acquired. The use and application of the spectroscope are also taught. The students in the laboratory at the end of the first term, are examined in the text-book and by analysis of *unknown bodies* in the dry way.

In the second term of the Senior year, the Inorganic Chemistry is finished and Organic Chemistry is taken up. The laboratory work continues throughout the term, and the student takes up the tests for the bases and their separation; also the tests for the acids and their separation. The students are examined at the close of the second term by means of unknown bodies, composed of mixtures of the several groups of bases.

In the Agricultural Course, in the third term of the Senior year, the students listen to a course of lectures upon Agricultural Chemistry, in which are discussed

such subjects as the following: Relation of Chemistry to Agriculture, the literature of Agricultural Chemistry, elements of plant growth, their relative abundance and importance, the atmosphere, the soil, fertilizers, etc. Storer's Agriculture, Johnson's "How Crops Grow" and "How Crops Feed" are used as reference books. Laboratory work accompanies the lectures and work in the text-books. The study of quantitative analysis begins in the gravimetric way, and, after some little practice, students will be directed in any line of special work they may desire.

Keeping in mind the object for which the College is founded, we have so planned our Chemical Course as to prepare the student for the general application of Chemistry to the industrial arts, while seeking thoroughly to ground him in the application of science to agriculture. A chemical laboratory, fitted up with modern appliances, balance-room, foul-gas room, and desks for thirty-six students, is ready for the classes.

Students have access to the following current chemical literature: *Chemical News*, *Analyst*, *Journal of the Chemical Society*, *Journal fur Landwirthschaft*, *Journal of Analytic Chemistry*, and "Fresenius Zeitschrift fur Analyt, Chemie."

Geology—Recognizing the fact that a knowledge of Geology is one of the foundations of agricultural science, the subject receives corresponding attention. In the second term of the Junior year, Elementary Geology and Economic Geology are taught, Tarr's Elementary Geology, and Tarr's Economic Geology of the United States being used. In the third term of the same year Systematic Geology is taught from Dana's New Text-Book of Geology and by means of lectures. Frequent visits to the mountains and quarries illustrate the practical application of dip, strike, fault, etc. At the close of the work, the students are required to identify and describe twenty-five rocks or mineral specimens.

CIVIL AND IRRIGATION ENGINEERING.

General Statement—In the last two years of the College course, special training is given, to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurement and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The department has a good collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for stream gauging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Cement Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile, and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India, and Australia. In the present condition of Irrigation Engineering these collections are especially useful.

Irrigation Engineering—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in the midst of one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

The Materials of Engineering—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron, and steel. Exercises with testing-machine familiarize students with the peculiarities of these materials.

Surveying—The principles of Land Surveying are taught in the last term of the Sophomore year. While instruction therein is given to the students in all courses, it is intended to cover the ground with sufficient thoroughness that the students in the Civil Engineering Course will not need to traverse any of the same ground again. The course includes a study of the operations of surveying; the adjustments of the instruments used by the surveyor; surveying with picket, chain, and compass; and leveling. Considerable attention is given to the methods of the Government Surveys, the finding of corners, and platting. Field work is required of each student for six weeks, two hours daily, in which exercises are given in chaining, measurement of angles with the chain and with the compass, compass surveying, and leveling. Attempt is made to teach the student to be careful and accurate, and to give him the confidence that comes with correct work. The student is required to check his work, and the exercises are so planned that many exercises check the results of others. When possible, a short time is given to a discussion of the measurement of water and the hydraulic laws relating thereto—knowledge useful to every citizen of an irrigated country and expected of every surveyor. A more extended training in this line is given in the later years of the course.

Reservoirs and Dams—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability are taught; also, the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

Agricultural Hydraulics—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable; principles of irrigation; laying out of grounds or farms for irrigation; and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural Courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

Trusses and Bridges—The instruction covers the methods of computing the stresses in bridge and roof trusses; the principles involved in the construction of trusses; and their erection, designing, etc. Merriman's *Trusses and Bridges* is used as a text-book.

Meteorology—A six weeks' course of lectures is given in the Fall term. This course includes a discussion of the means of taking observations; methods of exposure of instruments and precautions for taking correct observations; the characteristics of climate; es-

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pecially the features of the climate of Colorado; barometry and thermometry; influence of the various meteorological elements upon agriculture and plant growth; influence upon health; the study of storm movements from the daily weather charts and telegrams; the laws of storms; characteristics and causes of special storms, as chinooks, northers, hailstorms, tornadoes, and cloudbursts. The College and the Meteorological Section of the Experiment Station possess a complete line of meteorological instruments which are in constant use. These include self-recording thermometers, barometers, rain gauges, sunshine recerders, psychrometers, anemometers, etc. The records from these instruments—together with the results of the meteorological investigations at the College for the time since the Experiment Station was established—and the daily charts of the Weather bureau furnish material for illustration and study in connection with the course.

Physics—Instruction in Physics is given for three terms of the Sophomore and Junior years, the course lasting one complete college year. Laboratory work is carried on two hours daily for one-half of each term. The important sciences of Mechanics, Light, Heat, Sound, and Electricity are studied. Special attention is given to the latter subject, both in the class-room and in the laboratory, in view of its increasing important applications, and as a basis for Electrical Engineering. In the course in laboratory work, the student deals personally with the apparatus described in the text-book, performs experiments for himself, and carries on determinations of the physical constants, or experiments in such ways as will give training and knowledge and greater familiarity with the subjects studied.

The following is a selection from some of the laboratory exercises of the past year:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing of the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle-power of sources of light.

Determination of focal strength of lenses and mirrors.

MECHANICAL ENGINEERING.

General Statement—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines, and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops, and experimental laboratory. The studies of this course which are in common with other courses are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.
Boilers.
The steam engine.
Machine design, machinery, and mill work.

Drawing—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

Carpentry and Joinery—The class-room work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

Pattern-making and Foundry Work are similarly taught. The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, and, in connection, instruction in core-making and the management of the cupola and brass furnace.

Forge Work, etc., is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening, and annealing.

Machine Work and Vise Work are taught in a similarly thorough and careful manner.

Principles of Mechanism are studied with reference to the combinations of which machines are composed; and the study of designs for the communication of motion by means of gears, belts, links, etc., forms an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. Most of these models were acquired by gift from the makers, or by purchase. In many cases they were constructed by the students from their own designs.

Strength of Materials is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns, and other structural pieces, tests are made of chains, ropes, cables, solid bars, and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws; and strength of bricks, stones, marble, etc.

Machine Design is taken up for one term, and the students make designs for various machines and appliances.

Boilers—The various forms are carefully studied from the best authors.

The College possesses four steam boilers to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples obtained from different sources of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings; and a large collection of parts of boilers showing conditions incident to boiler management.

A new calorimeter has recently been constructed by the students which, together with the new and accurâte thermometers, adds greatly to the facilities for the study of boilers and boiler tests.

The Steam Engine is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests.

There are four steam engines at the College, three of which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These with what has already been named form a desirable equipment for the use of the students.

One twelve-horse power steam engine is set for a Prony brake. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

Machinery and Mill Work receive attention and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied.

The care and management of shops and the making of estimates are also considered; shop building and appliances receive careful attention.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

COURSE OF LABOR.

Bench work in wood	13	weeks
Wood-turning	12	"
Pattern-making	12	"
Moulding and casting	12	"
Iron and steel forging	13	"
Machine work in metals	12	"
Vise work in metals	12	"

BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First—The use of planes in joining, smoothing, and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle.

Students usually work from drawings. Cases, benches, boxes, foundry flasks, and a variety of other useful articles are made.

Machine Work in Wood—In connection with this course, with the use of tools, will be given the most rapid and economical method of selecting and preparing the wood for the machine. There will be given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools; and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, five dynamos, boring bars, gears, vises, bells, and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

Pattern-making and Foundry Work—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft, and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There will be given

examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where molds and cores are made, and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the molds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass, and other metals and alloys are made for vises, drafting-tables, dynamos, steam enbines, engine lathes, and other things needed.

Forge Work—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer, and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers, and all bolts, braces, and such other iron and steel work as may be needed.

Machine Work in Metal—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping, and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work.

Practical Mechanics—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers, practically, the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manfacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of *how* a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by this training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

Tool-Room System—There is a well-arranged toolroom, fitted-up with a check system designed to accustom students to order and neatness and the names of the tools in use.

Theory and Practice—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the class-room is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

MATHEMATICS.

General Statement—The purpose of the instruction offered by this Department is two-fold: First, to give the student clear and exact ideas of magnitudes and their measurement, the principles underlying the methods used, and the general unity pervading the mathematical sciences, or such of them as he has time to become acquainted with; second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

Arithmetic is taught the students of the Preparatory class. The year's work is designed to give a thorough review of the principles underlying the fundamental operations, and to give skill in the application of these to the various problems of business arithmetic. The students taking the work of the first term of the Sub-Freshman year receive a thorough drill in Mental Arithmetic.

Algebra is begun the second term of the Sub-Freshman year. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposed in character, and of the conciseness obtained by the use of literal notation; and to give him sufficient skill in the fundamental operations of Algebra to enable him to solve intelligently simple equations involving one unknown number. Subsequent work acquaints him with the solution of simple equations of several unknown numbers, with involution, evolution, radicals, quadratic equations, and as much more as may be possible in the time allowed to the subject.

Geometry is taken up as soon as the student is sufficiently acquainted with algebraic methods to apply them intelligently to the computations of this subject.

In the first of the three terms allotted to the study the student is given a thorough practical acquaintance with the construction of geometrical figures and led to discover for himself as many as possible of the properties of the figures he deals with. To this end he is compelled to use exact methods of construction and to make exact measurements on his figures. Having thus gained an extensive practical acquaintance with the subject, he next takes up formal proof by the syllogistic method and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience and is given thorough practice in the mensuration of geometric magnitudes. So far as the time and ability of the student will permit, he is practiced upon original exercises.

Trigonometry is taught in the second term of the Sophomore year. In the time allotted to this branch, the student is given clear ideas of the trigonometrical concepts, shown their connection, and given considerable practice in the practical application of this branch of Mathematics.

Descriptive Geometry—From the wide application of Mathematics in all branches of Engineering, those students electing either of the courses having to do with Engineering, pursue the study of Mathematics throughout the entire course, with the exception of the last two terms of the Senior year.

Descriptive Geometry is taught to those students electing the two courses in Engineering. The second and third terms of the Sophomore year are devoted to this subject. The principles of parallel and central projection, of development, etc., are discussed and illustrated in the solution of a great variety of problems, and many of these are accurately worked out on the draughting-board by each student.

Higher Algebra—The first term of the Junior year is devoted to a brief review of quadratics and radicals, and to the study of the principal algebraic methods usually denoted by the name Higher Algebra. Among the subjects considered are, Series of various sorts; Mathematical Induction and some of its applications, such as the demonstration of the Binomial Formula; the Theory of Equations; and various methods of solution of equations of the third and higher degrees.

Analytic Geometry—The second term of the Junior year is devoted to the study of Analytic Geometry. The student is made acquainted with the method of coördinates, and the connection between algebraic and geometric forms. The fundamental properties of the conic sections are developed, and as much more of the subject as the time permits.

Calculus—The last term of the Junior and the first term of the Senior years are devoted to the study of Differential and Integral Calculus. Taylor's Calculus is used as a text-book, and the study is pursued substantially as the subject is there developed. The notion of limits is, however, made the logical basis upon which the subject is developed.

The department is provided with a set of Schroeder models from Darmstadt, for purposes of illustration in the study of Solid Geometry, and with models of warped surfaces, etc. The collection is being added to from time to time. There is a collection of drawings for use in the study of curves and curve-tracing.

HISTORY, LITERATURE AND GERMAN.

A well-rounded education includes a somewhat thorough knowledge of History and English Literature. These subjects are studied throughout the entire course. United States History is a part of the work of each term of the Sub-Freshman year. Two terms of the same year require some work in English and American Literature. The study of the history of the United States is aided by maps illustrating the periods of maritime discovery, the colonization of the New World, territorial acquisitions, etc.

The course in General History and English Literature is as follows:

FRESHMAN YEAR.

First term—Ancient History: Greece and Rome.

Second term—Europe from the Invasion of the Northern Barbarians to the French Revolution.

English Literature to Shakespeare. Readings from Chaucer, Spenser, and Elizabethan prose writers.

Third term—Europe: French Revolution to the present time.

Shakespeare to the present time. Readings from Shakespeare, Milton, Bunyan, Dryden, and later writers.

JUNIOR YEAR.

Third term—Recent History of America, A., L.

SENIOR YEAR.

First term—English Literature, L.

Second term—Philosophy of History, L.

Third term—Recent History of Europe, A., M., C., L.

Afternoons: Readings in History four hours per week in Library.

Sheldon's General History is used as a text-book. The student is taught to reason about historical events and is required to consult books of reference.

Kellogg's Literature is the basis for the study of English Literature. Each historic period and the authors of that period are considered together. Class work also includes lectures.

Members of the Ladies' Course engage in a more extended study in English and American Literature.

Each member of the class reads masterpieces from the greatest English writers, makes comparison between them, and studies style with as much care and thoroughness as possible.

The development of literary taste is the aim of this work. The study of the Philosophy of History includes such subjects as, historical investigation; laws governing human actions; reciprocal influences of religion, literature, and government; comparisons and criticisms of past civilizations; and the elements found in our present European civilization.

A valuable collection of photographs belongs to this Department and illustrates the architecture of the past and present from ruins, and buildings now in existence.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European History since the Christian Era, and also include seven maps for the study of Ancient History, and excellent maps for studying United States History.

The College Library is an important factor. Its shelves are well filled with standard literature, and with works of special interest and assistance to the student of history.

German—Opportunities for the study of German will be furnished by this Department. Such work will be elementary or more advanced according to the abilities and needs of students.

ENGLISH AND SOCIOLOGY.

English—The ability to write a clear and elegant English sentence is an accomplishment much to be desired; and it is a recognized fact that English forms an important branch in all well-rounded courses of study.

In the Winter term of the Freshman year, the subject of Composition and Rhetoric is studied, with Lockwood's *Lessons in English* as a text-book. The object of this work is to familiarize the student with the structure and arrangement of sentences and the fundamental principles of style. It is designed to enable the student to acquire skill in the logical arrangement of his thoughts, and to express them in a clear and forceful manner.

In the Fall term of the Sophomore year, advanced work in Rhetoric is required. Genung's *Practical Rhet-*

oric is used as a guide. Among the subjects receiving attention are: Diction, Description, Narration, Exposition, Argumentation, Persuasion, Figures of Speech, and Versification. The laws of mind and language as related to effective discourse, is a subject given special consideration.

Composition writing and the preparation of orations form an important feature of the work in English.

Civil Government—An intimate acquaintance with the Constitution of the United States is recognized as an essential to good citizenship, and for this reason Civil Government is placed early in the course of study. This subject is studied by the members of the Sub-Freshman class during the Spring term. Townsend's *Shorter Course in Civil Government* is used as a text-book.

Ethics—This subject is taught by lectures. The class-room work is supplemented by reading. Much independent work is required of the students.

Applied Psychology—This branch is studied by the students of the Ladies' Course in the Winter term of the Senior year. Tompkin's *Philosophy of Teaching* is used as the basis for the work.

Sociology—This forms a part of the Agricultural Course and Ladies' Course, and is studied during the Spring term of the Senior year. Small and Vincent's text-book is used. This subject is made as practical as possible. Each student is required to pursue independently some line of investigation and to embody the result of his work in a thesis.

General Statement—In all the work of the Department of English and Sociology, the Library serves as an important and a necessary factor. Works of reference are consulted. Prescribed courses of reading and study are followed in Ethics, Sociology, and related subjects.

DOMESTIC ECONOMY.

The work outlined for the Department of Domestic Economy covers the preparation which the proper care of the home requires. There are three terms of text-book work, two terms of lectures, and nine terms of practical exercises.

Home Hygiene—This subject is taken up at the beginning of the second term of the Sophomore year. The text-book used is *Public Health*, a series of prize essays relating to health in the home, healthy foods, school sanitation, disinfection, prevention of disease, etc.

Household Economics—Lectures on *Household Economics* are given to the ladies of the Sophomore class in the third term of the college year.

Chemistry of Cooking—In the first term of the Junior year the subject considered is the *Chemistry of Cooking*. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The subject, in many of its phases, is considered in the first term of the Junior year. The second term of this year, Atkinson's *Science of Nutrition* is used as a basis for class exercise and lecture work. The bulletins of the United States Department of Agriculture are helpful in this work.

The Sick Room—The work of the third term, Junior year, includes lectures on nursing, emergencies, etc.

Sewing—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery, and millinery. Special attention is given to dressmaking.

The Kitchen—The work in the kitchen laboratory includes the study of foods with practice in all kinds of cooking and laundering.

General Topics—A lecture is given each Friday afternoon on some topic relating to the care of the house, clothing, and person; social duties; customs of good society; and anything that will aid in the development of a perfect womanhood.

POLITICAL ECONOMY AND LOGIC.

Political Economy—The text-book used is Walker's *Political Economy.* Other works of the author, and the writings of the best authorities on economic questions, are within reach of students who visit the Library.

The important questions with which the subject deals are treated without attempt to uphold any narrow, one-sided view. Economic questions of particular importance to the people of the United States are given special prominence in the recitations, discussions, and lectures. These are considered from a historic and an impartial standpoint.

Logic—This study is taught by recitations, discussions, and original exercises. Careful consideration is given to the principles of deductive reasoning. The syllogism is analyzed. The principles and methods underlying scientific investigation are made subjects of study, and the basis of class discussion and essay work. Practical application of what the student learns in the study of Logic is made in testing the validity of arguments and detecting fallacious reasoning.

The history of the science is considered and something learned of the writers whose works thereon have recognized merit. Gregory's Practical Logic is the text-book used.

Civil Government—The study of the Constitution of the United States is an important preparation for the duties of citizenship. The subject, as one of the studies of the Senior class, includes some consideration of the political history of the United States. The Constitution of the State of Colorado and the organization of the departments of government in conformity with its provisions are considered in special lectures.

Psychology—Hill's *Elements of Psychology* is the text-book in use. The subject is taught principally by recitations, discussions, and lectures. Much oral work is done in connection with recitations based upon the text. Supplementary reading along the lines of recent investigations is encouraged. Contributions to the science, found on the pages of the best periodicals, supplement the text-book statements. The lives and writings of representative thinkers in the domain of metaphysics afford interesting topics for much oral instruction and library investigation. Something is done to point out the sources whence a knowledge of the history of psychology can be obtained. The relations of the subject to the work of the teacher are pointed out and made themes for study and discussion.

MILITARY SCIENCE.

A recent act of the General Assembly of Colorado places the Cadets of The State Agricultural College upon the same footing as regards arms, ammunition, and camp and garrison equipage as the Colorado National Guard.

For instruction in Military Tactics, the students are formed into companies and the companies into an Infantry Battalion with proper Field and Staff.

The system of instruction being that in use in the United States Army, is calculated to form the habit of prompt obedience, foster the natural martial instinct, and prepare the student, should necessity arise, to organize a company or battalion of our National militia.

The drill includes the School of the Soldier, company and battalion in close and extended order, a thorough course in position, sighting, and aiming exercises, competition with rifle at short ranges, and a series of lectures on castramentation and the art and science of war.

Instruction in Artillery embraces such portions of the United States drill regulations as pertain to the formation of detachments, manual of the piece, mechanical maneuvers, aiming drill, etc. For use in drill, the department has two three-inch rifled field pieces, from the Rock Island Arsenal, and one hundred and fifty cadet rifles, with accoutrements.

Military drill is required of each male student, unless excused for physical disability or by special vote of the Faculty for good and satisfactory reasons. Each cadet is required to purchase a copy of the standard United States Infantry Tactics, for study and reference. He is also to provide himself with a uniform, modeled somewhat after the uniforms of the regular army. It is neat and durable, consists of blouse, pantaloons, cap, and gloves, and costs about twelve dollars.

In the Fall and Spring terms, a period of forty-five minutes daily is devoted to outdoor maneuvers. During the winter, the new armory is used and a portion of the time is devoted to recitations in tactics and to lectures. When possible, an encampment will be held at the close of the Spring term for practical instruction in guard and field duty.

MILITARY ORGANIZATION.

H. D. HUMPHREY, 20TH INF., U. S. A.,
Professor of Military Science and Tactics, Commandant.

STAFF:

A. H. BUNGARDT, *Adjutant.*
J. M. LOUD, *Sergeant Major.*
G. S. NORMAN, *Quartermaster Sergeant.*
CLAUDE ANNIS, *Color Sergeant.*
H. D. WHIPPLE, *Chief Trumpeter.*

COMPANY A.

B. A. Gage,
Captain.

W. A. Hilton,
Lieutenant.

R. T. Calkins,
First Sergeant.

C. S. Bungardt,
T. J. Warren,
R. C. Calloway,
Percy Golding-Dwyre,
Sergeants.

H. C. Miller,
Ray J. Baker,
C. D. Strever,
Clifford Atherly,
Corporals.

COMPANY B.

A. J. Harris,
Captain.

R. H. Hess,
R. S. Gray,
Lieutenants.

Fred S. Hotchkiss,
First Sergeant.

W. A. Dickens,
B. J. Prendergast,
M. D. Williams,
Sergeants.

Henry W. Suiter,
John L. Rugh,
Amos Jones,
Emil Affolter,
William J. Strever,
Corporals.

COMPANY C.

S. D. Philip,
Captain.

D. J. Richards,
R. N. Underwood,
Lieutenants.

H. O. Brown,
First Sergeant.

Frank Corbin,
C. E. Swann,
J. W. Goodwin,
O. G. Reed,
Sergeants.

Frank Bear,
L. C. Hall,
A. V. Benson,
Ralph J. Stephenson,
Corporals.

COMMERCIAL COURSE.

By action of The State Board of Agriculture, taken in December, 1895, the College Faculty was instructed so to arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of The State Agricultural College."

The aim of the course is to meet the wants of those who are seeking a high-grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to fit students for bookkeepers and stenographers in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest order in accounting and general reporting. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well-trained and educated are sought and liberally paid for their services.

The students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the college associations of all kinds, and all the elaborately-equipped laboratories are open to the students of the department and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

THOROUGHNESS.

One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions, and promotion. Business men are willing, and will always be willing, to pay well for competent bookkeepers and stenographers. The successful bookkeeper and stenographer must be an expert. Thorough training is absolutely necessary. The students' work is examined critically and is not credited unless it is up to the required standard.

BOOKKEEPING.

The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry. After showing by his work and examinations that he has a clear understanding of what must be learned, the student is promoted to advanced bookkeeping in which he learns to keep books in various lines of business with special and labor-saving books; and from which he enters the actual business practice, is assigned his official desk as a business man, is furnished with a cash capital and merchandise stocks, according to the business in which he is to engage. He receives his blank forms of all kinds of business and commercial paper and then begins business operations.

He buys and sells merchandise, makes regular deposits at College National Bank, gives and receives checks, carries on correspondence with different individuals and firms, and finally balances his books daily. The office department is supplied with large books which are kept by the students. The New Complete Bookkeeping by Williams & Rogers, is used as the text in theoretical bookkeeping.

STENOGRAPHY AND TYPEWRITING.

Stenography is taught in a practical and systematic manner. The elements and principles are thoroughly mastered after which carefully-graded practice exercises and easy dictation are given. Students are required to read back their stenographic notes and transcribe the same on the typewriter. Students are afforded opportunities for actual work in the business practice of the office department where a variety of business correspondence is carried on. There are, also, opportunities for reporting.

Typewriting instruction is given throughout the year. Students are taught the mechanism and the uses of the various parts of typewriters. Finger exercises are given for the acquiring of the proper touch and method of manipulating the keyboard. Proper instruction is given how to take care of machines and how to remedy and adjust any derangements. Instruction is given in setting up matter on the typewriter, the correct forms of correspondence, statements of accounts, writing of contracts, legal papers, tabulating work, etc., etc. The Department is supplied with the leading standard typewriters. Manifolding, the use of the mimeograph, and the letter-press receive careful attention.

The latest and most approved methods are used in bookkeeping, stenography, typewriting, and penmanship.

EXPENSES.

Tuition is free. All books and stationery for the two years' course need not cost to exceed $25. Board and lodging at from $3 to $4 per week; club board at reduced rates.

ADVANTAGES.

1. Free tuition. 2. Text-books and all stationery sold at cost. 3. Each class in charge of a specialist. 4. First-class office equipments for actual business. 5. The large library, museum, college associations, and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that can not be equalled by business colleges.

REQUIREMENTS FOR ADMISSION.

Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in the following-named branches: Reading, Writing, Geography, Grammar, and Arithmetic. Those who are prepared for the work will receive advanced standing.

DIPLOMA AND CERTIFICATE.

Students who complete the two years' course and sustain the required examinations will receive a diploma.

Those who complete part of the course and pass the required examinations will receive a certificate of proficiency for the branches completed.

Students of this Department are subject to the rules and regulations of the College.

LIBRARY
OF THE
UNIVERSITY of ILLINOIS

BRANCHES NOT ELSEWHERE NAMED.

Oratory—This has been defined as the "Art of influencing conduct with the truth sent home by all the resources of the living man."

The study of the Art of Expression is followed in some form throughout the College course. A healthful interest in the subject has been manifested by all the students.

Our public institutions, our form of popular government, great questions of moral and political moment, the almost boundless possibilities within the grasp of individual effort, all tend to increase and intensify the interest in, and to emphasize the importance of, this much-needed branch of education.

Few text-books are required in this branch, as copies of the best selections of English prose and verse are furnished the students. This gives a much broader range and scope to the study, and adds an interest to the work not otherwise attained.

Practical rhetorical work is given by the students before audiences every Friday evening. These entertainments are becoming quite popular and tend to encourage the students to faithful work.

Physical Culture--All lady students are required to enter the class in *physical culture.*

Those physically unable to prosecute the work are excused by special action of the Faculty. The young ladies usually enjoy the training and under it grow in grace of movement and ease of bearing. The exercises give promptness and precision of action and promote bodily health and strength.

Special physical exercises are marked out as the individual needs of each student require, and results are closely watched. The College is well equipped for all the work attempted.

Vocal Music—Attendance upon the different classes in vocal music is voluntary. Since the establishment of classes, many students have manifested an active interest in the work. The College Glee Club is an outgrowth of the interest taken in music by some of the students. The degree of proficiency which this organization has attained, in a comparatively short time, is very creditable.

It is the aim of the instruction to give a thorough knowledge of the elementary part of music and some acquaintance with advanced work. Students are taught sight reading and the theory of music; also, they learn something of the biographies of the most eminent composers.

"*The Classics*"—The State Agricultural College is not a *classical* school. Its operations are conducted in conformity with the provisions of the statutes of the United States, and the State of Colorado, elsewhere quoted. There is nothing in any law to prohibit instruction in the languages, ancient or modern, in what are termed "Land-grant Colleges." On the contrary, some work in foreign languages is clearly contemplated in the various acts relating to these educational institutions. There has been a demand for more linguistic work than is outlined in the different courses of study now pursued in the College. To meet this demand a competent instructor in Latin and Greek has been employed. Classes in each language will be organized at the opening of the college year, September, 1897. Students are not required to enter either of these classes by reason of any regulation prescribing the work to be done in any existing course of instruction. All work in Latin and Greek will be elective. Such work, if satisfactorily done, may be accepted, under Faculty regulation, as a substitute for such regularly scheduled work as may not be regarded as an *essential* part of the specific course upon which the student has entered.

German—The best scientific and technical schools of the country make provision, more or less thorough, for some instruction in German. The students of such schools have great advantage in the prosecution of their work if the scientific and technical knowledge of German authors is accessible to them. Hereafter, the College will offer instruction in German to such students as elect to receive it. This instruction will be given by those who make use of the most approved method of teaching a foreign language.

Public Rhetoricals—Each student enrolled has at least one public rhetorical exercise each College term, unless excused by Faculty vote. These exercises consist of declamations and recitations for the lower classes and original exercises for the advanced students. The importance of these exercises to the student can scarcely be over-estimated, as every one should have a training which will enable him to present his views upon any question in public in an intelligent and pleasing manner.

THE LIBRARY.

The College Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. Now it contains 10,000 bound volumes besides many thousand pamphlets. The State Board of Agriculture recently appropriated $3,300 from the "Annie Jones" and "College" funds for library support the current year. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture; Irrigation, principally by English, French, and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoology and Entomology; Mechanics and Engineering; Political Economy; Domestic Economy; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc., etc., etc.

On the shelves are found bound volumes of the following-named periodicals:

Agricultural Science.
American Agriculturist.
American Architect.
American Bee Journal.
American Chemical Journal.
American Garden.
American Journal of Science.

American Machinist.
American Magazine of Civics.
American Meteorological Journal.
American Naturalist.
Anthony's Photographic Bulletin.
Appleton's Journal.
Atlantic Monthly.
Arena.
Art Amateur.
Auk.
Blackwood's Magazine.
Botanical Gazette.
Breeders' Gazette.
Bulletin of the Torrey Botanical Club.
Canadian Entomologist.
Century Magazine.
Chemical News.
Contemporary Review.
Cosmopolitan.
Cottage Gardener.
Country Gentleman.
Critic.
Current History.
Current Literature.
Eclectic Engineering Magazine.
Eclectic Magazine.
Educational Review.
Edinburgh Review.
Edinburgh Philosophical Journal.
Electrical World.
Engineering Magazine.
Engineering News.
Engineering Record.
Entomologist.
Forum.
Farmers' Chronicle.
Garden and Forest.
Geographical Society's Journal.
Good Health.
Good Housekeeping.
Harper's Monthly Magazine.
Harper's Weekly.
Historical Magazine.
Irrigation Age.

Journal of Botany.
Journal of Chemical Medicine and Veterinary Science.
Journal of Ethics.
Journal of Morphology.
Journal of Natural History.
Journal of Psychology.
Journal of Science and Arts.
Journal of Veterinary Archives.
Journal of the American Chemical Society.
Journal of the Association of Engineering Societies.
Journal of the Chemical Society. (London.)
Journal of the Franklin Institute.
Littell's Living Age.
Magazine of Western History.
Magazine of Horticulture.
Meehan's Monthly.
Meteorological Journal.
Microscope.
Microscopical Journal.
Mining Industry and Tradesman.
Nation.
National Live Stock Journal.
Nature.
North American Review.
Pacific Rural Press.
Physical Review.
Political Science Quartely.
Popular Science Monthly.
Popular Science News.
Power.
Proceedings of the Academy of Natural Science. (Philadelphia.)
Proceedings of the California Academy of Science.
Public Opinion.
Publishers' Weekly.
Review of Reviews.
Rural New Yorker.
Safety Valve.
Scientific American and Supplement.
Scientific Farmer.
Scribner's Monthly.
The Horticulturist.
Translations and Reprints of European History.
Wallace's Monthly.

Werner's Magazine.
Zoölogist.

Current numbers of the following-named newspapers and periodicals can be found in the Library reading-room:

Agricultural Epitomist.
Agricultural Gazette of New South Wales.
Agricultural South.
American Agriculturist.
American Architect.
American Fertilizer.
American Gardening.
American Grange Bulletin.
American Historical Review.
American Horticulturist.
American Journal of Science.
American Journal of Sociology.
American Kitchen Garden.
American Machinist.
American Magazine of Civics.
American Meteorological Journal.
American Microscopical Journal.
American Naturalist.
American Sheep Breeder and Wool Grower.
American Society of Civil Engineers.
Analyst.
Anthony's Photographic Bulletin.
Arena.
Arid America.
Art Amateur.
Auk.
Baltimore Sun.
Boulder Camera.
Boulder Herald.
Botanical Gazette.
Cañon City Record.
Cassier's Magazine.
Century.
Chaffee County Record.
Chemical News.
Colorado Springs Gazette.
Contemporary Review.
Country Gentleman.

Cosmopolitan.
Critic.
Current History.
Current Literature.
Dakota Farmer.
Delta Fruit Grower.
Denver Daily Republican.
Deutsche Botanische Monatsschrift.
Economic Studies.
Electrical World.
Elgin Dairy Report.
Engineering Magazine.
Engineering News.
Engineering Record.
Entomologist.
Erythea.
Evening Telegraph. (Colorado Springs.)
Fancier and Farm Herald.
Farmers' Advocate.
Farmer's Home.
Farm and Home.
Farmers' Guide.
Farmers' Magazine.
Farming.
Field and Farm.
Fort Collins Courier.
Fort Collins Express.
Fort Lupton Fact.
Fort Morgan Times.
Forum.
Gardeners' Chronicle.
Garden and Forest.
Golden Globe.
Good Housekeeping.
Grand Junction News.
Grand Valley Star-Times.
Grange Exponent.
Grange Visitor.
Greeley Herald.
Greeley Sun.
Greeley Tribune.
Gunton's Magazine.
Gunnison News.
Harper's Magazine.

Harper's Weekly.
Highland Chief.
Hoard's Dairyman.
Homestead.
Idaho Springs News.
Indiana Farmer.
Industrial American.
International Journal of Ethics.
Irrigation Age.
John Hopkins University Studies.
Journal of Botany.
Journal of Morphology.
Journal of the American Chemical Society.
Journal of the Association of Engineering Societies.
Journal of the Chemical Society. (London.)
Journal of the Franklin Institute.
Julesburg Advocate.
Ladies' Home Journal.
Land of Sunshine.
Leadville Pay-Streak.
Littleton Independent.
Longmont Times.
Loveland Reporter.
Louisiana Planter.
Massachusetts Plowman.
McClure's Magazine.
Meehan's Monthly.
Meeker Herald.
Midland Poultry Journal.
Military News.
Mirror and Farmer.
Montrose Enterprise.
Montrose Press.
Nation.
National Stockman and Farmer.
Nature.
New England Florist.
New York Produce Review.
North American Review.
Pacific Rural Press.
People's Champion.
Physical Review.
Political Science Quarterly.
Popular Science Monthly.

Popular Science News.
Power.
Practical Farmer.
Practical Nurseryman.
Procedings of the Academy of Natural Science. (Philadelphia.)
Proceedings of the California Academy of Science.
Proceedings of the American Economic Association.
Psyche.
Public Opinion.
Revue Generale de Botanique.
Review of Reviews.
Rocky Ford Enterprise.
Rocky Mountain News.
Rocky Mountain Educator.
Rural New Yorker.
Safety Valve.
Salida Mail.
Salt Lake Herald.
San Luis Valley Courier.
San Luis Valley Graphic.
Science.
Scientific American and Supplement.
Scribner's Magazine.
Southern Cultivator.
Southern Planter.
Southern States.
State Herald.
Statesman-Exponent.
The Industrialist.
Torrey Botanical Club.
Translations and Reprints of European History.
Twentieth Century.
Walsenburg Cactus.
Weekly Star-Times.
Werner's Magazine.
West American Scientist.
Western Homestead.
Wool and Cotton Reporter.
Zoölogist.

The Library is well lighted and adequately furnished. Save the noon hour, students can now enter the Library rooms any week day between the hours of

7 a. m. and 5 p. m. On Sunday the Library is kept open from 1 to 4 p. m.

Books may be drawn for a period of two weeks. The library is catalogued according to the Dewey Decimal System, the author, title, and subject cards being arranged on the dictionary plan, in convenient cabinets, to which the students have free access.

COLLEGE ORGANIZATIONS.

LITERARY SOCIETIES.

There are three Literary Societies connected with the college—the "Philo-Æsthesian," the "Columbian," and the "Atheneum." Meetings are held weekly throughout the school-year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome. "The Philo-Æsthesian Society" meets in the College Chapel. "The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech."

The Spring-term organization was as follows: Smith D. Philip, President; Archie J. Harris, Vice-President; Mattie N. Shoemaker, Secretary; Frank Bear, Treasurer; Robert S. Gray, Marshal; James M. Loud, Anna B. Hawkins, and Claude H. Annis, Programme Committee.

"The Columbian Literary Society" meets in Horticultural Hall. "This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge."

The Spring-term organization was as follows: Mary E. Prendergast, President; Bertram A. Gage, Vice-President; Emil Affolter, Secretary; Fred S. Hotchkiss, Treasurer; Alta E. Lewis, Critic; William J. Littleton, Sergeant-at-Arms.

"The Atheneum Literary Society" meets in the lecture room of the Civil Engineering Building. Its purpose is, "to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law."

The Spring-term organization was as follows: Thomas J. Warren, President; Frank L. Garnick, Vice-President; Clara L. Preston, Secretary; Ernest C. Herlow, Treasurer; Francis V. L. McCandless, Sergeant-at-Arms; Clara E. Herner, Critic; Charles W. Mayers and Charles S. Newell, Programme Committee.

ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The officers at the close of the school-year were as follows: David J. Richards, President; Anna B. Hawkins, Secretary; Herman O. Brown, Treasurer; Archie J. Harris, Superintendent of Manuscript.

The Association holds two contests each year; one for the members of the Sophomore and Freshman classes, the other for the members of the Senior and Junior classes.

The last Sophomore-Freshman contest took place in the College Chapel, March 5, 1897. There were five competitors. Marguerite Prendergast, of the Sophomore class, won first place and the silver medal. Lee R. Cooke, of the Sophomore class, was given second rank. The subjects and speakers were as follows:

The Neglected Duties of Life	Mark H. Harned, 1900
Opportunity—A Nation's Salvation	Edwin W. Smith, 1900
The Coming Century	Addison L. Kellogg, '99
The Dying Century	Maggie Prendergast, '99
Sentiment in Government	Lee R. Cooke, '99

The Senior-Junior contest followed on the evening of March 6. There were eight contestants. Fred S. Hotchkiss, of the Junior class, was awarded first place and the gold medal. Smith D. Philip, of the Senior class, was given second rank. The following was the programme of exercises:

The Mission of Youth................Bernard J. Prendergast, '98
Our Nation's Lawmakers......................W. A. Hilton, '97
The Boundary Line of Science............Mary E. Prendergast, '97
The Fortress of Life.........................Smith D. Philip, '97
The Labor Union......................Melvin D. Williams, '98
Evolution of Liberty.......................May Dievendorf, '97
Features of Democracy.......................Emil Affolter, '98
The Development of Co-Operative Government, Fred S. Hotchkiss, '98

NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science; and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

The officers of the Club are, Jay D. Stannard, President; Theodosia G. Ammons, Vice-President; Richard A. Maxfield, Secretary; L. D. Crain, Treasurer; Clarence P. Gillette, Curator of Museum; Jacob H. Cowen and Fred S. Hotchkiss, Programme Committee.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The purpose of the local organization is to promote growth in grace and Christian fellowship among its members. It urges aggressive Christian work particularly by and for students. Above all, it strives to point College students to a higher standard of moral excellence.

The officers in charge at the close of the college year were, William H. Kelso, President; Albert M. TenEyck, Vice-President; Aaron V. Benson, Recording Secretary; Augustus S. Wood, Corresponding Secretary; Addison L. Kellogg, Treasurer.

Elbert McCreery, William H. Kelso, and Aaron V. Benson represented the College Y. M. C. A. at the State

Convention held in Pueblo, Colorado, March 18, 19, 20, and 21, 1897.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

"The object of the Y. W. C. A. is the development of a higher Christian character in its members, and the prosecution of active Christian work among the young women of the College. It seeks to surround the students with an earnest spiritual atmosphere; to minister to their intellectual, moral, and social well-being, and to promote growth in goodness, purity, and truth."

Officers: Marguerite E. Stratton, President; Mabel C. Blinn, Vice-President; Gertrude F. Kellogg, Recording Secretary; Anna B. Hawkins, Corresponding Secretary; Linnie M. Rutledge, Treasurer.

Misses Ella A. Mead and Mabel C. Blinn represented the Association at the Geneva Conference, June 29, 1896; and Miss Gertrude F. Kellogg was the representative to the State Convention held at Boulder, April 16, 1897.

WASHINGTON'S BIRTHDAY.

Each year an organization of the students is formed for the purpose of properly celebrating Washington's Birthday. The last celebration was held in the College Chapel, Monday evening, February 22, 1897.

ORDER OF EXERCISES.

Address by the President of the Day..David J. Richards, Class 1897
Washington, the Statesman......Barton G. D. Bishopp, Class 1901
The Elements of Success............Stuart B. Garbutt, Class 1900
National Success..................William A. Doty, Commercial
Progress of Our Nation..............James A. Stump, Class 1899
Which Path Will You Tread?..........Elbert McCreery, Irregular
The Influence of the Pilgrims on Our Form of Government......
..............................Charles E. Swann, Class 1898
The Dawn and Eve of America's First Century................
..................................Ralph H. Hess, Class 1897
College Oration—In War and Peace........................
......................Grafton S. Norman, B. S., Class 1896

ATHLETIC ASSOCIATION.

This Association was organized in the Fall term of 1892. Its object is to promote the physical well-being of its members and to afford such field practice in athletic games as will enable its chosen representatives to participate with credit in intercollegiate contests.

The Association is officered as follows: Smith D. Philip, President; Emil Affolter, Vice-President; James A. Stump, Secretary; Charles S. Newell, Treasurer; Thomas J. Warren, Field-Day Manager; Lewis C. Hall, Sergeant-at-Arms.

COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the college year. The columns of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official, and patron of the College.

The editorial staff is as follows: Mary E. Prendergast, '97, Editor-in-Chief; Archie J. Harris, '97, Business Manager; Grafton S. Norman, B. S., '96, Literary Editor; Claude H. Annis, '98, Advertising Editor; Mattie N. Shoemaker, Special, Local Editor; Anna B. Hawkins, '99, Society Editor; Edwin W. Smith, 1900, Exchange Editor.

COLLEGE GLEE CLUB.

Alfred H. Bungardt, *Leader;* Richard T. Calkins, *Manager.*

First Tenor.

Alfred H. Bungardt,
Carl S. Bungardt,
William J. Littleton.

Second Tenor.

Charles E. Swann,
Stephen F. Sims,
Richard T. Calkins.

First Bass.

Harry C. Miller,
Frank Corbin,
Andrew Macfarlane,
Lee R. Cooke.

Second Bass.

Jacob H. Cowen,
Charles B. Preston,
Robert A. Pierce.

BUILDINGS AND EQUIPMENTS.

Main College Building—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Sociology; History, Literature and German; Latin and Greek; Political Economy and Logic; and Zoology and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoological Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40×72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian;* special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

The New Chemical Laboratory—The need of a better building for the use of the Chemical Department has long been recognized. The building in which the chemical work of the College and Station is now done is one of the oldest on the college grounds. It could not be put in proper shape to meet the present wants of the department.

The new laboratory building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professor's suite of rooms, including office, balance room, and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right, the stairway leads to an entrance on the second floor. Here are the assistant's quarters—office; experiment station laboratory, with balance room and hoods; storage room; and nitrogen room containing two hoods.

Directly in front of the main entrance to the loggia, is the qualitative laboratory, 30×38 feet, supplied with working desks large enough to accommodate thirty-two students. This room is provided with nine hoods, storage room, and balance room. This room being an inside room, is lighted by a large skylight in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory, and behind the professor's rooms, is the quantitative laboratory arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods, and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, doors, drawers, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk and supplied with a rubber plug. This waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft accelerated by hot-water coils placed in large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26×46 feet. The chemistry lec ture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

Horticultural Hall—The New Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52×64 feet. It is basement, two stories, and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work, and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture-room, office, assistant's office, herbarium, and other small rooms for experimental work. The second floor is arranged for a large museum with octagon ceiling; also private laboratories as well as plant, seed, and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

Greenhouses and Forcing-house—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25×50 feet and consists of a wrought-iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides, and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20×50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory which is 14×14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

Orchards and Grounds—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds, and cold-frames.

Agricultural Hall—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for class-room work. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, laboratory, agricultural museum, and seed-room. The basement has four apartments which are used for heating apparatus and storage.

Farm and Stock—The Farm contains 240 acres, nearly all under cultivation.

The live stock consists of Clydesdale grade draft horses, Short-Horn and Jersey cattle, Shropshire sheep, and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will admit.

Mechanical Engineering Building—This building includes two large main portions, two stories high, and an ell one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge, and adjoining it is the tool room supplied with a good assortment of small tools such as taps, dies, drills, reamers, gauges, and milling machine cutters. Here is kept the supply of nails, screws, belting, etc.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, one 17-inch engine lathe, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, and a universal tool and cutter grinder. An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

The testing laboratory is also in this room. It is supplied with a 50,000-pound testing machine, Prony brake, steam pumps, gauges, thermometers, etc.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the buidling is devoted to bench and machine work in wood. There are sixty benches each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, and eight wood-turning lathes.

In the lower story of the east main portion of the building is the engine room containing the 50-horse power Corliss engine which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gauge tester affords a means of correcting steam gauges.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room which occupies the upper part of this building has accommodations for fifty students. In the ell portion of the building are found the coal house, blacksmith shop, and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are 25 forges all attached to an underground system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears. The store closets for iron and steel are in this room.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks, and skimmers. Most of the equipment for this room, including the cupola and blast furnace, was made by the students.

Civil and Irrigation Engineering—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main class-room is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A second room on the same floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the Section in the Experiment Station.

There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories, one-half of the area being used for each. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor, to lessen injurious vibration, is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000, for testing the flow of water through orifices and over weirs. Here also is placed the Pelton water motor and the cement-testing instrument, together with some other portions of the equipment, pipes, pressure-gauges, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gauges; gyroscope; air-pump and accessories; thermometers; mirrors and lenses; projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000-ohm resistance coil; astatic, sine, tangent, and d'Arsonval galvanometer; Edelmann ohmmeter; quadrant; electrometer; voltmeters; telephones; standard cells; and much minor equipment.

For use in Engineering and Hydraulics, it has Colorado, Lallie and Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gauges; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water-motor, presented to the Department by the Pelton Water Wheel Co., a water-meter, presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments, it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and a Buff and Berger transits; five levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement-tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing-machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

Military Science and Tactics—This department has one hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice, and artillery firing.

Domestic Economy—The Department of Domestic Economy has eligible and serviceable quarters in the building formerly occupied by the Department of Botany and Horticulture. The accommodations and appliances are ample for class-room and laboratory work in everything connected with household management.

Scientific and Technical Apparatus—All departments of science have elaborate, modern, and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy, and entomology is done with the aid of apparatus representing a cost of $20,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over $19,000.

Value of College Property—The property of The State Agricultural College is carefully inventoried in December of each year. The total valuation for each of six years is given:

1891	$144,568.98
1892	176,600.26
1893	187,847.53
1894	197,633.76
1895	207,411.83
1896	212,699.52

The sums named do not represent any portion of the Experiment Station property which, in December, 1896, was inventoried at $25,289.62.

LIBRARY
OF THE
UNIVERSITY of ILLINOIS.

GENERAL INFORMATION.

Admission—The College admits students of both sexes, provided they pass the required examination or, in lieu thereof, present satisfactory certificates of proficiency given by city and county school superintendents or others competent to sign such evidences of scholarship; and provided they are *at least fifteen years of age.*

The work of the Preparatory year is, in part, a review of the common-school branches. In this year attention is given to American and English prose and verse, Drawing, Elocution, Word Analysis, and Composition.

No one will be admitted to this class who has not completed the work of the seventh-year grade of the public schools. The College management does not seek students for this class; it is made a part of the College course for the reason that there are persons, having limited educational advantages at home, who can enter upon its work with profit to themselves and to the detriment of no one else. The requirements for admission to the Sub-Freshman class are those usually required for entrance to the best high schools. In no instance will this standard be lowered. Candidates for Freshman class standing must show a scholarship fully equivalent to that of one well-fitted to enter upon the work of the tenth-year grade of the public school or the second-year grade of a good high school.

Candidates for advanced classes or work must be examined on all previous work, or bring certificates of standing from schools having an equivalent grade of work.

Candidates for admission should appear for examination on the date announced in the calendar of exercises, preferably at the opening of the College year. Those entering later, or proposing to take advanced work, must be prepared to take a more thorough and prolonged series of examinations.

Regular and Special Courses—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well-qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular courses.

Grades—Each student is expected to maintain a grade of 65, on a scale of 100 as perfect. A student is graded as passed in any study, or branch of manual practice, when the average of his daily progress and his term examination equals 65, on a scale of 100 as perfect.

Failure may be made up, and tested by special examination, or the study may be again taken up with a subsequent class.

Discipline—The discipline of the College is administered by the Faculty according to a system of demerits.

Misconduct, in or out of classes, unexcused absences from any required College exercises, meddling with College property, etc., receive one or more demerits, as the case may seem to require. Parents of students who receive ten demerits will be notified of the students' misconduct by the President; twelve demerits suspend, while fifteen expel the student from the College.

Leaving College—A student will not be allowed to leave College in term time without leave of absence granted by the President of the Faculty; otherwise the student will be liable to *suspension or expulsion.* Temporary leave of absence can be granted by the President, or the officer in charge during his absence. Final separation from the College must be acted upon by the Faculty.

Labor—Labor, two hours each school day, is required of all students not excused for physical disability. This labor (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

Degrees—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

The degree of Master of Science will be conferred upon all graduates of the College who pursue thoroughly, some line of work after graduation, and who submit an acceptable thesis.

The degrees of Civil Engineer and Mechanical Engineer will be conferred upon post-graduate students and others who, by reason of satisfactory work, are entitled to receive them.

Students who complete the work of the Commercial Course will receive a Diploma.

Expenses—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

Two boarding clubs, the membership being about twenty-five in each case, are organized and managed by male students. The yearly expenses of one of these students are as follows:

Club board, 40 weeks, at $2.25 per week	$ 90.00
Room rent, 40 weeks, at .75 per week	30.00
Laundry, 40 weeks, at .50 per week	20.00
Cadet uniform	12.00
Books and stationery	8.00
Incidentals	10.00
Total	$170.00

Students of either sex can secure lodging and board in private families at from $3.50 to $4 per week.

Many students who "*bach*" bring their yearly expenses at College within $125. Other students bring a small edition of home life with them. Brothers and sisters rent a small cottage and begin housekeeping on a modest scale, and with an equitable division of labor. It is rare in such cases that the monthly expense to each member of the little household exceeds $8.

There are numerous ways by which students of either sex may materially lessen their College expenses. An industrious girl, one who really means business, can find desirable quarters in some good home and make her house service render her the price of her board and lodging. There is work for a young man—work which will bring him the wherewith to meet a not inconsiderable part of his necessary expenses—if he is willing to wear a laborer's clothes and soil his hands in doing something useful.

The College is an employer of student labor to a limited extent. In the year just closed our students received nearly $700 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Students are counseled to a provident use of their money. There are those who spend money thoughtlessly and uselessly, but their number is not considerable. The surroundings of the College are such as favor the practice of economy. The pleasures in which most students indulge are simple, harmless, and inexpensive. The student's expense account is not forced beyond proper limits by reason of customs in vogue among his fellow-students or by attractions of questionable repute brought within reach of his College life.

State Experiment Stations—The Central Station is located at the College, Fort Collins, Larimer County, Colorado. Five Sub-Stations are provided for, two of which are in operation. They are the Arkansas Valley Station, at Rocky Ford, Otero County; and the Rain-Belt Station, at Cheyenne Wells, Cheyenne County. The Divide Station, at Monument, El Paso County, and the San Luis Valley Station, at Monte Vista, Rio Grande County, have been discontinued temporarily. The other station, located in Delta County, has not yet been put in operation.

This department was created in acceptance of the conditions of the Hatch Act, and the work has been arranged in conformity with its provisions.

Bulletins are issued quarterly, or oftener, and reports annually. The former are distributed to those who request them as long as the editions last.

LOCATION AND HISTORY.

Location—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer county, which is one of the most prosperous agricultural counties in the State. The town contains 3,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of the Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light; and its sidewalks are exclusively made of excellent flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Union Pacific, Denver & Gulf Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by three trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights, and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

History—The origin of the State Agricultural College of Colorado, like that of its sister institutions in other States, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, *"a college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related* *to agriculture and the mechanic arts, in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."*

This act gave the College an endowment of 90,000 acres of land. From this source the College now receives an annual income of nearly $5,000.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The Legislature, in addition to providing for the support of the College by the mill tax, before named, has made the following named special appropriations:

Year.	Amount.	For What Purpose.
1881	$ 5,000	College Dormitory
1883	10,000	Mechanic Shop
1889	18,000	Extension of Main Building
1893	6,500	Sewer System
1895	10,000	Additions to Buildings

The State Experiment Stations are intimately connected with the College, and are under the control of its governing board. These stations, five in number, owe their existence to the acceptance, by the State, of the provisions of the Congressional Act, better known as the "Hatch Act," of 1888. The College receives $15,000 a year from the Treasury of the United States for the performance of the experimental work required of the stations.

The College also receives support from the General Government under the provisions of an Act of Congress, passed August 30, 1890, known as the "Morrill Bill." The first annual payment from this source was $15,000. The act provides that this sum shall be increased $1,000 yearly until it reaches $25,000, when it shall become permanent.

The probable annual revenue of the College, for the fiscal year ending November 30, 1897, and the sources whence it will be derived are herewith shown:

1. Land Income Fund, derived from interest on money received from sales of land donated by the General Government, and rents of leased lands not yet sold, about $4,500.

2. "Hatch Act," support of the United States Experiment Stations, $15,000.*

3. United States Fund, "Morrill Bill," $23,000. (This will ultimately reach $25,000 per annum.)

4. Special Fund, derived from sale of stock, farm products, and the like (estimate based upon the average for a number of years)—$1,000.

5. State Tax Fund, one-fifth of a mill on all the taxable property of the State, about $39,000.

Yearly receipts from all sources, given approximately, $82,560.

Prior to 1887, but one course of study was pursued by students. The following-named courses, from which students can make choice, all lead to the degree of Bachelor of Science, save the last named: Agricultural Course, Mechanical Engineering Course, Civil and Irrigation Engineering Course, Ladies' Course, and Commercial course.

The enrollment of students and the number of graduates for each year since the opening of the College, are as follows:

---

* No part of this fund is available for College support. It must be used exclusively for meeting expenses connected with the prosecution of experimental work connected with the stations.

Years.	Males.	Females.	Total.	Graduates.
1880	14	11	25	0
1881	35	22	57	0
1882	49	32	81	0
1883	50	31	81	0
1884	40	37	77	3
1885	50	46	96	6
1886	45	42	87	1
1887	63	42	105	4
1888	71	38	109	4
1889	73	34	107	2
1890	56	18	74	9
1891	77	29	106	3
1892	101	45	146	7
1893	135	44	179	7
1894	142	56	198	7
1895	164	66	230	13
1896	161	71	232	12
1897	223	112	335	12

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoology and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, English and Sociology, Domestic Economy, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, Greek, German, Oratory, Physical Culture, and Vocal Music.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common school, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those sciences and arts which bear directly upon *agriculture and kindred industrial pursuits*."

CALENDAR OF EXERCISES.

1897-1898.

Entrance Examinations	Monday, August 30, 1897
Registration of Students	Monday, August 30, 1897
Fall Term begins	Tuesday, August 31, 1897
Fall Term closes	Wednesday, November 24, 1897
Winter Term begins	Monday, November 29, 1897
Holiday Recess begins	Thursday, December 24, 1897
Holiday Recess closes	Saturday, January 1, 1898
Winter Term closes	Friday, March 4, 1898
Spring Term begins	Monday, March 7, 1898
Baccalaureate Address	Sunday, May 29, 1898
State Board of Agriculture meets	Wednesday, June 1, 1898
Commencement Exercises	Thursday, June 2, 1898

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SEPTEMBER, 1897

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER, 1897

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31						

NOVEMBER, 1897

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DECEMBER, 1897

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JANUARY, 1898

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FEBRUARY, 1898

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MARCH, 1898

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APRIL, 1898

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MAY, 1898

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29	30	31				

JUNE, 1898

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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

JULY, 1898

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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

AUGUST, 1898

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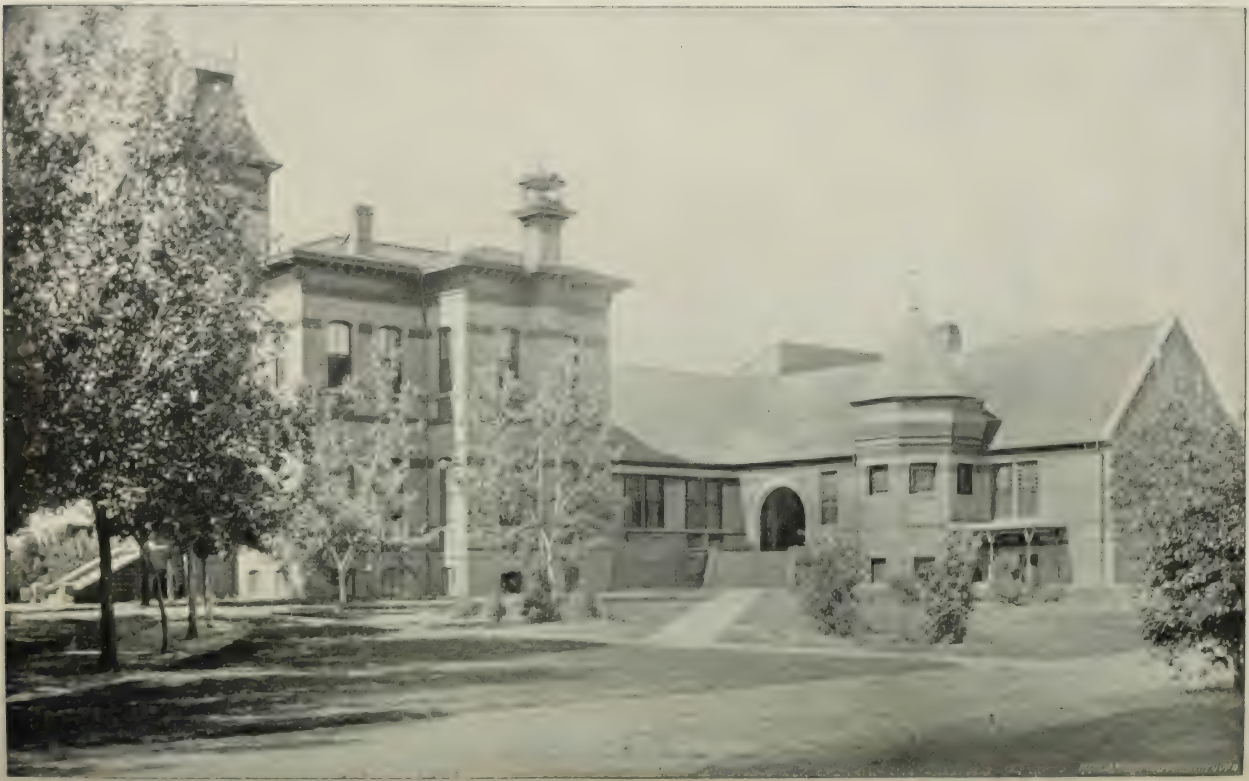
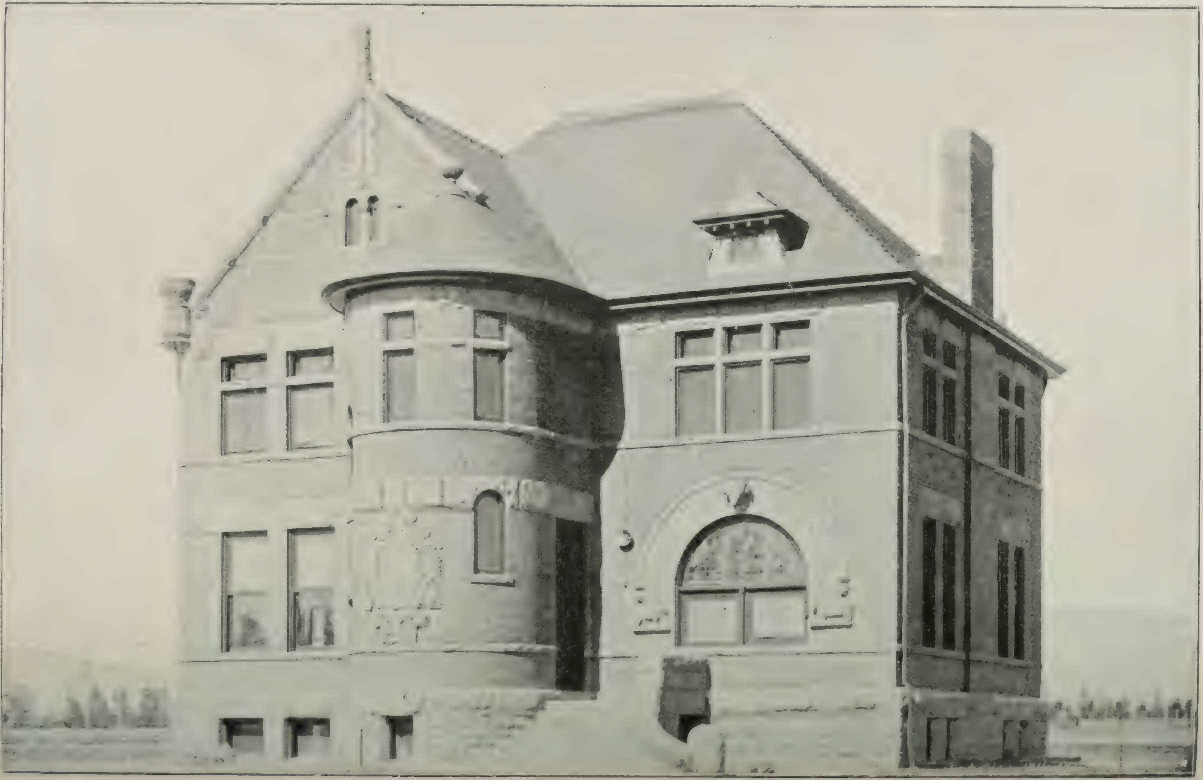
21	22	23	24	25	26	27
28	29	30	31			



MAIN COLLEGE BUILDING



AGRICULTURAL HALL.

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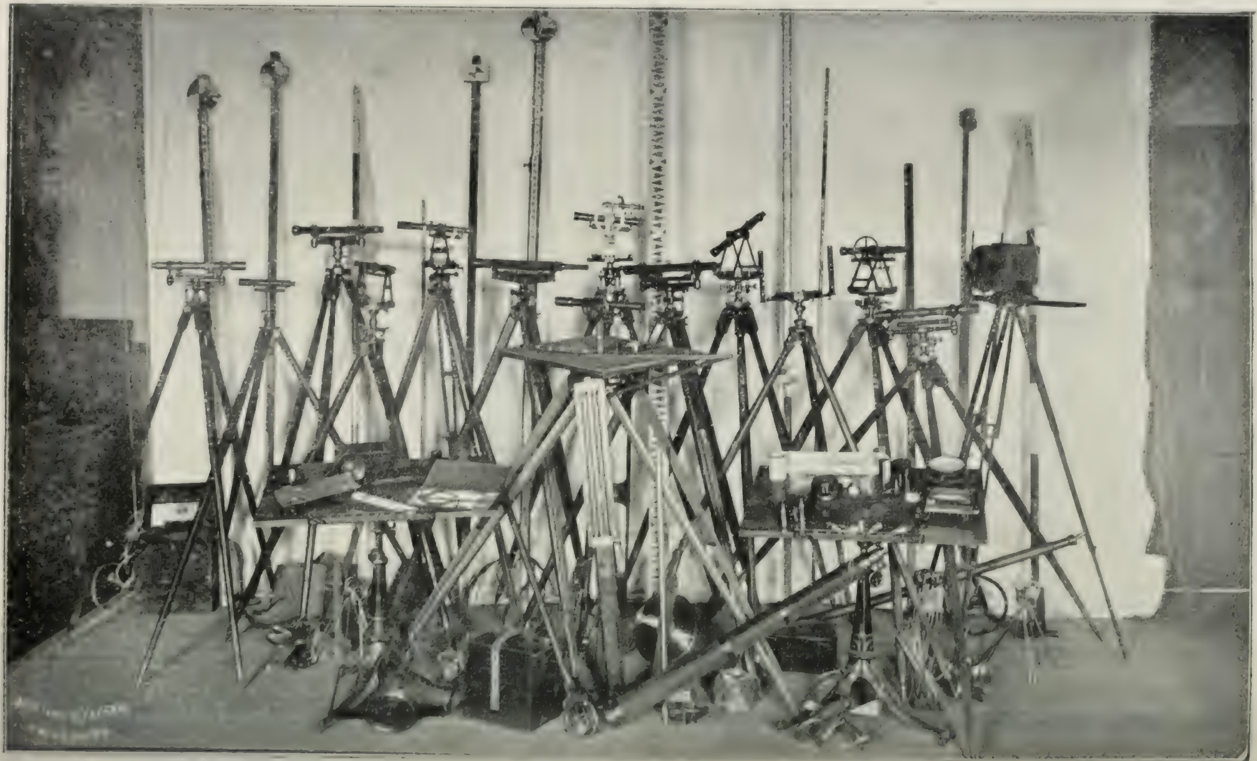
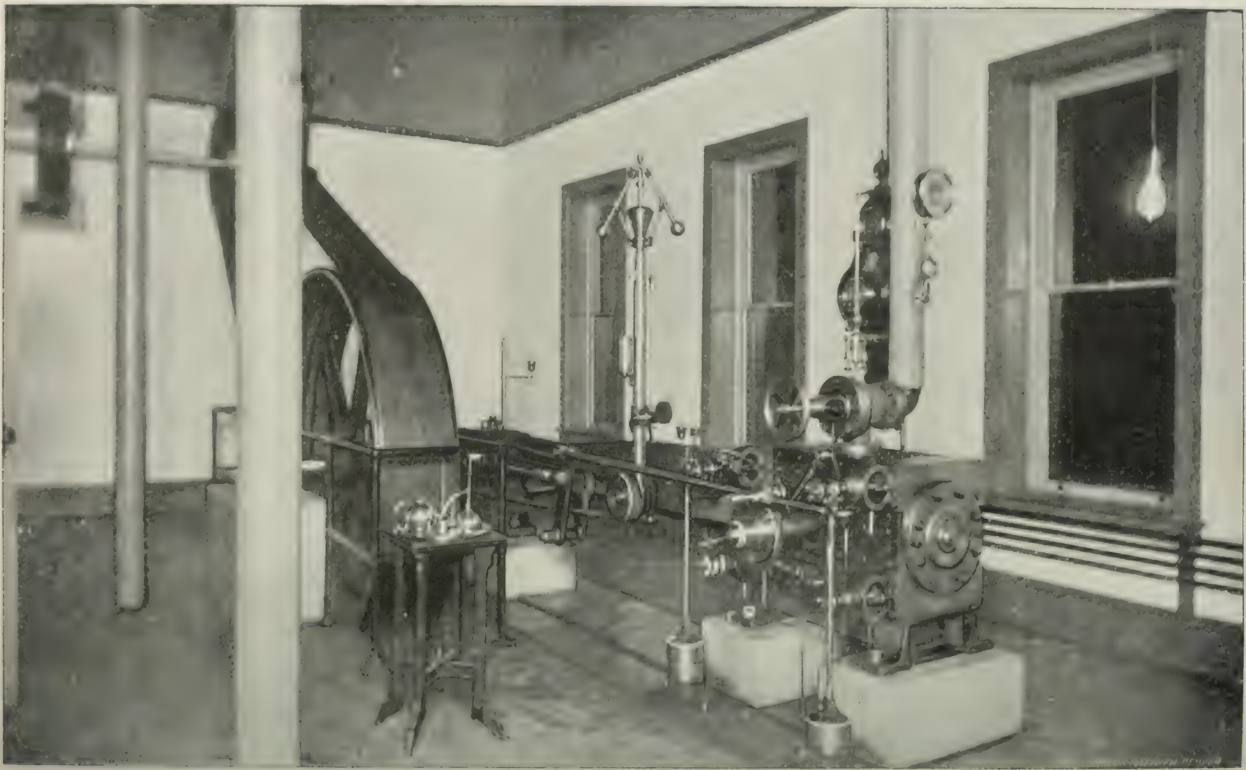
CIVIL AND IRRIGATION ENGINEERING BUILDING

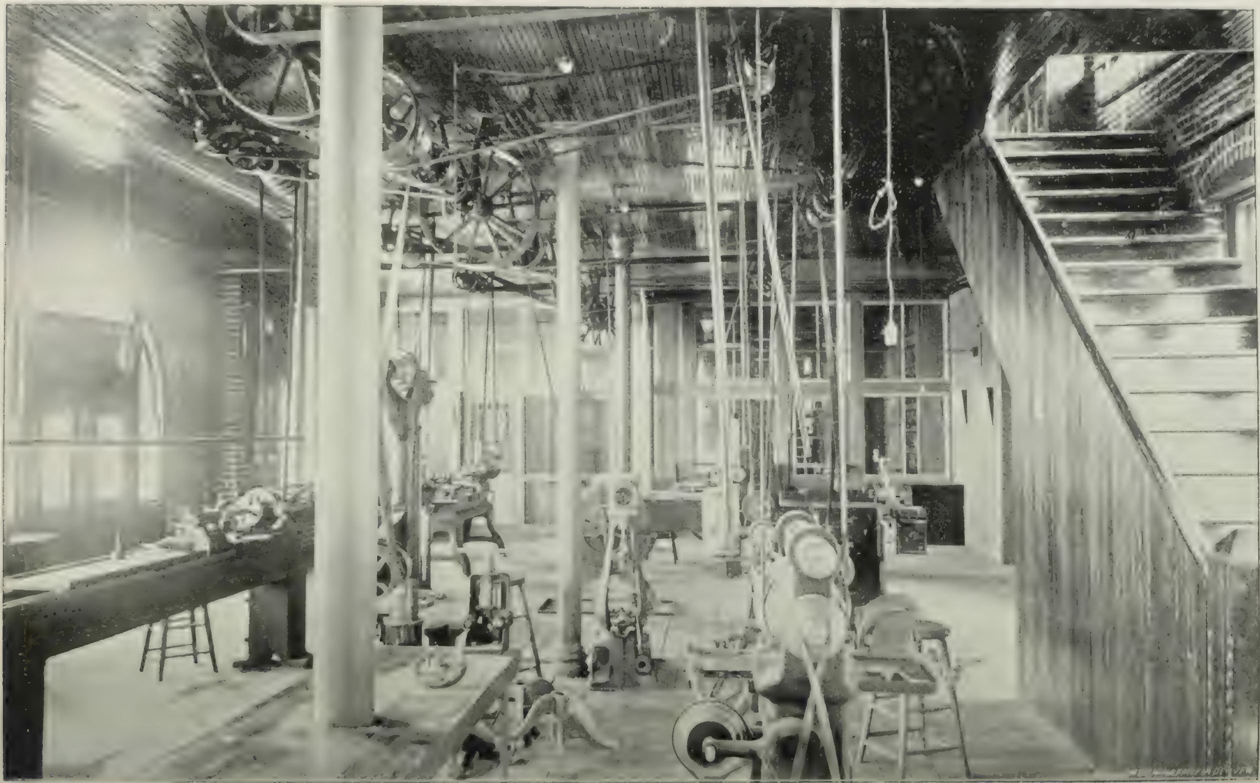


SURVEYING AND ENGINEERING INSTRUMENTS

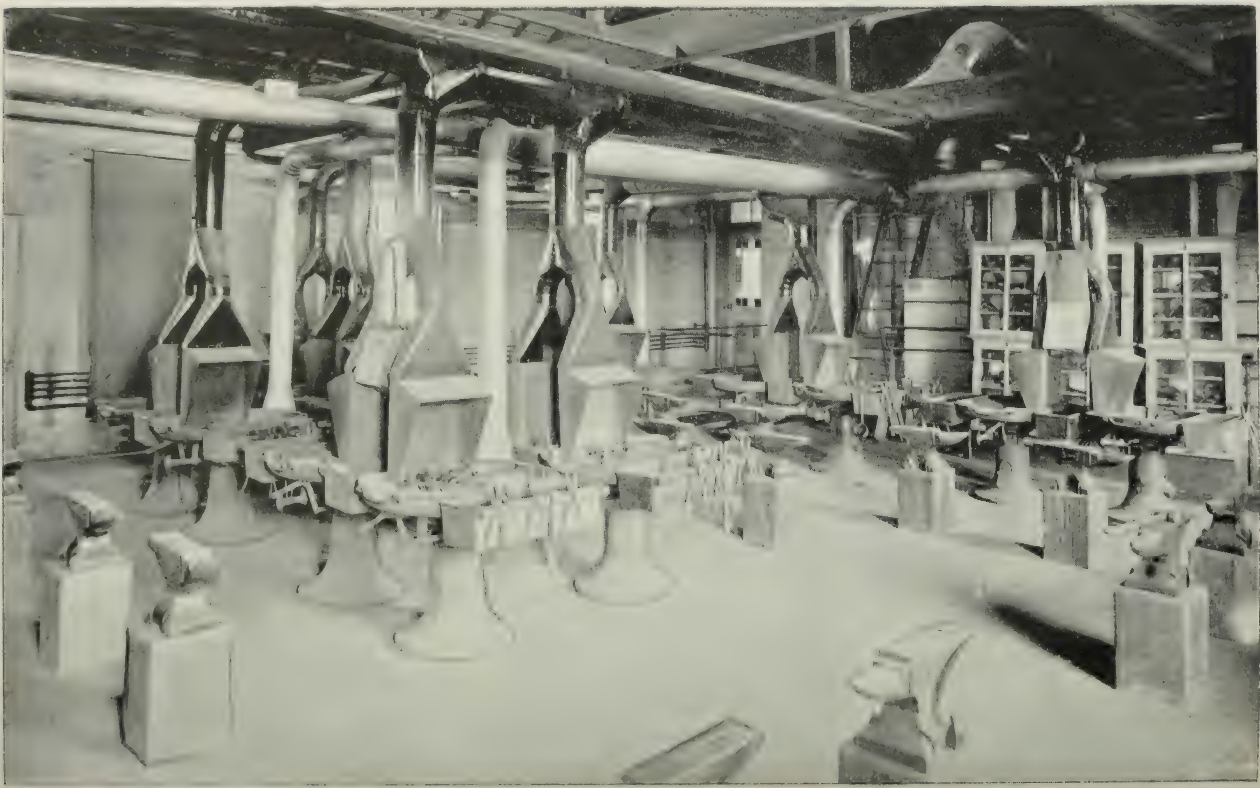
MECHANICAL ENGINEERING BUILDING.



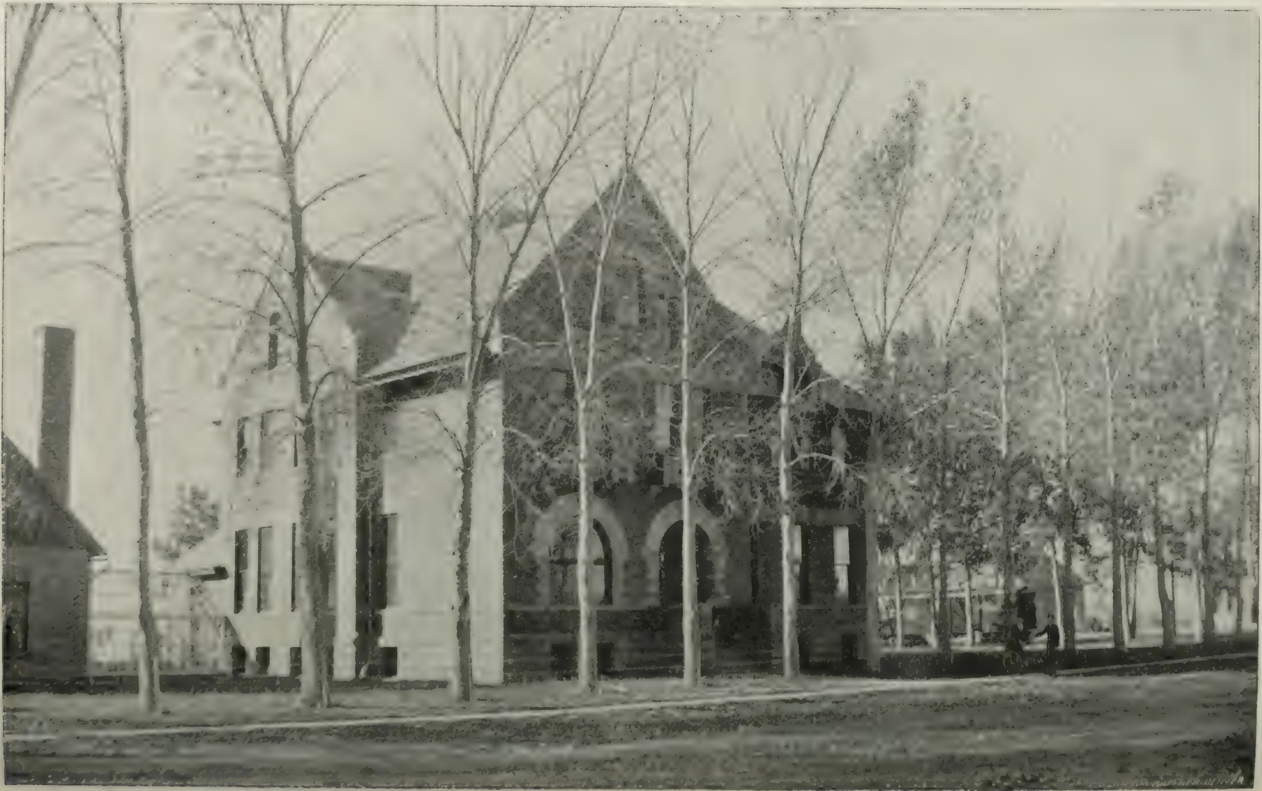
ENGINE ROOM DEPARTMENT OF MECHANICAL ENGINEERING.



MACHINE ROOM DEPARTMENT OF MECHANICAL ENGINEERING.

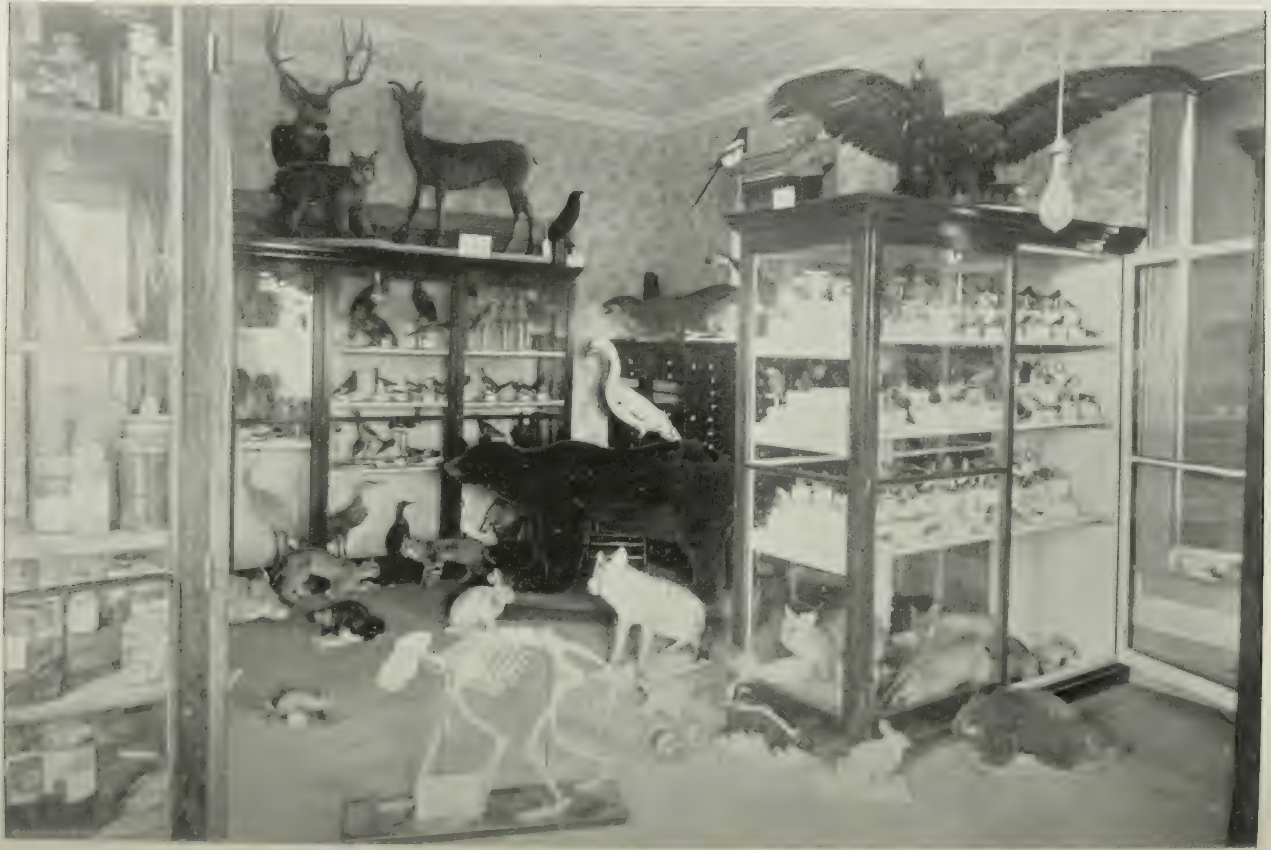


FORGE ROOM DEPARTMENT OF MECHANICAL ENGINEERING



HORTICULTURAL HALL.

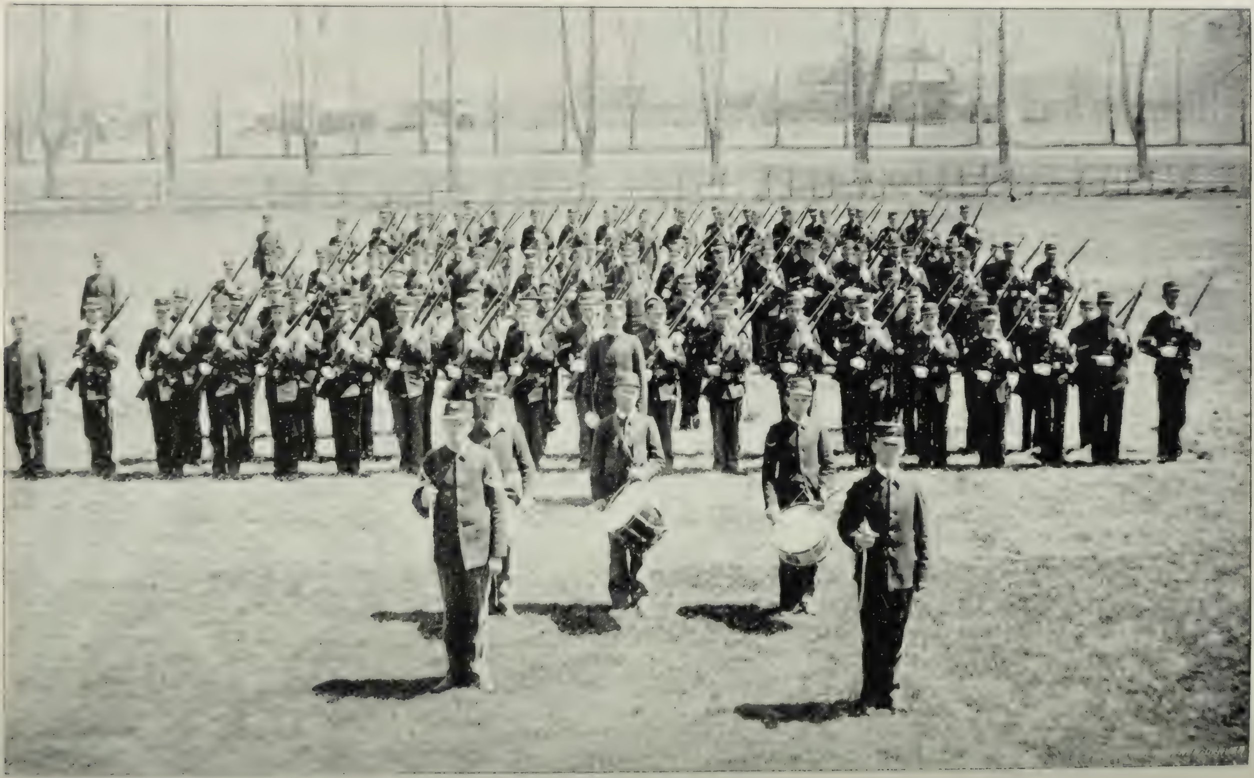
PHYSIOLOGICAL LABORATORY.



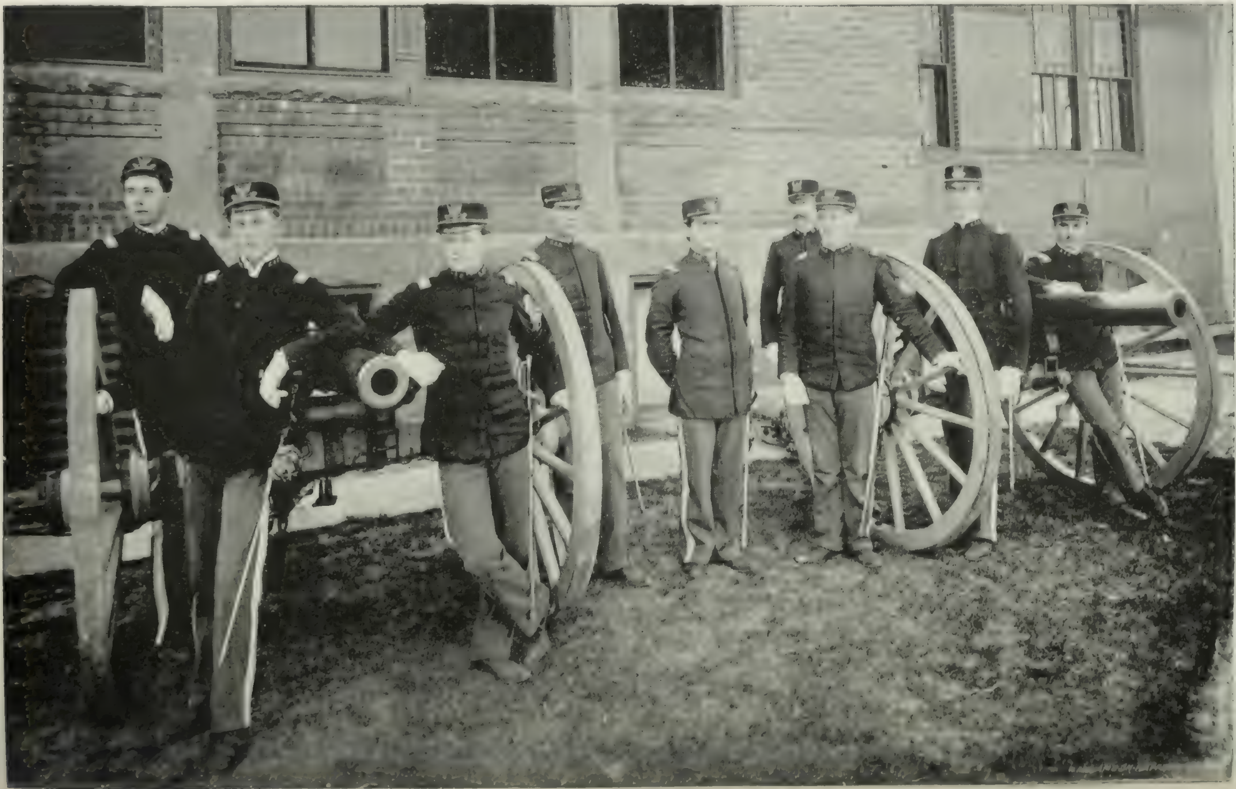
CORNER OF MUSEUM

CHEMICAL BUILDING.

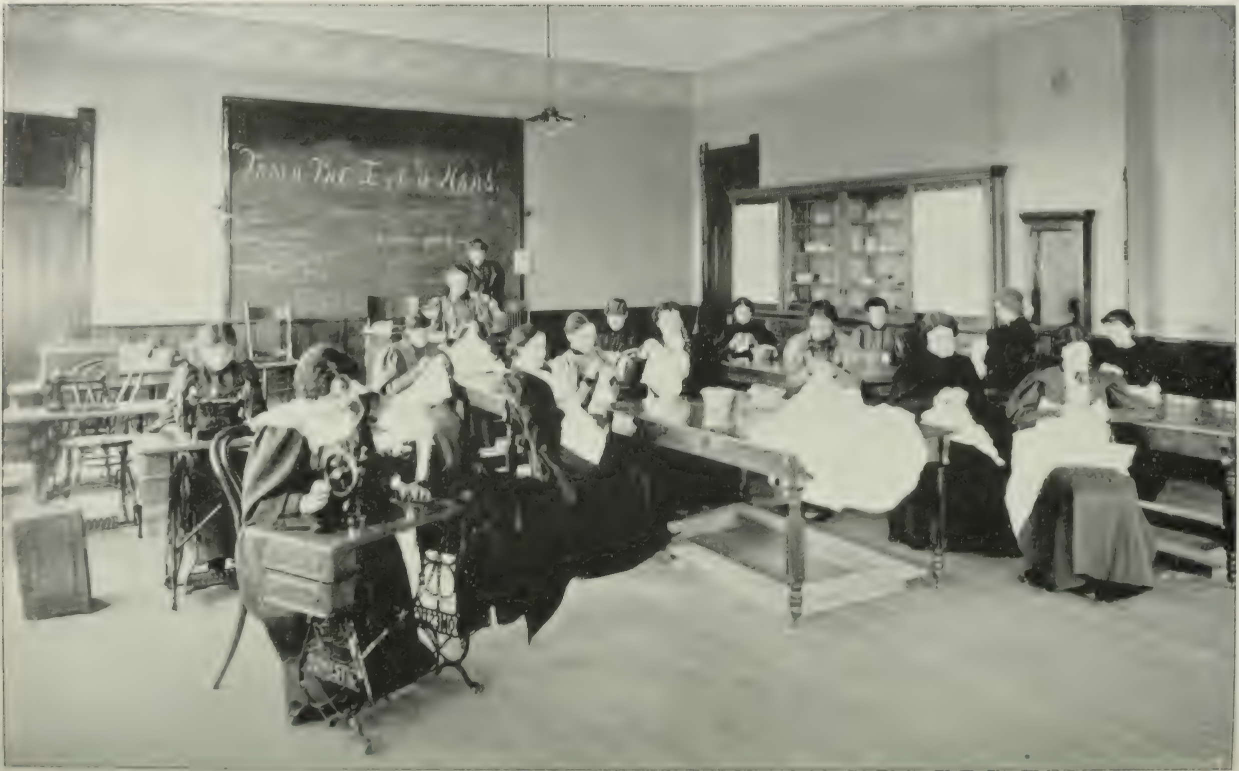
CHEMICAL LABORATORY



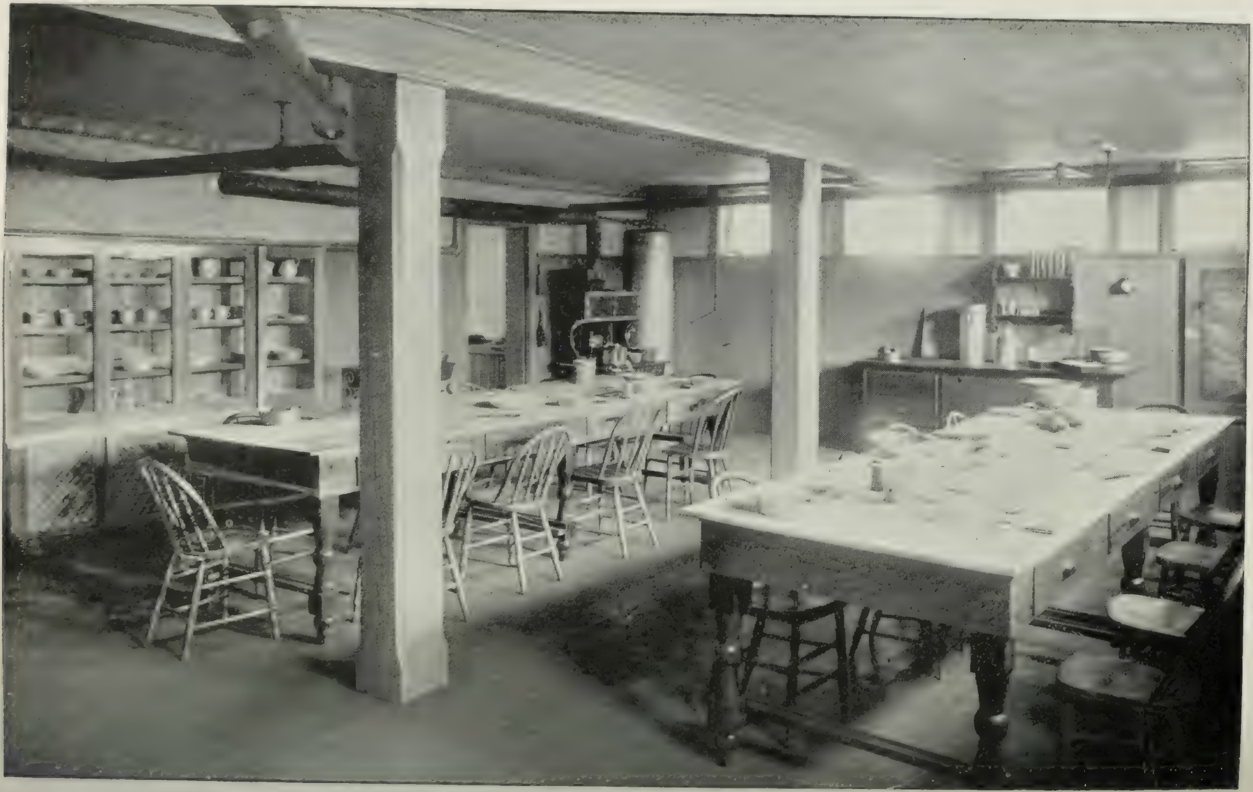
MILITARY COMPANIES.



COMMISSIONED OFFICERS—MILITARY COMPANIES

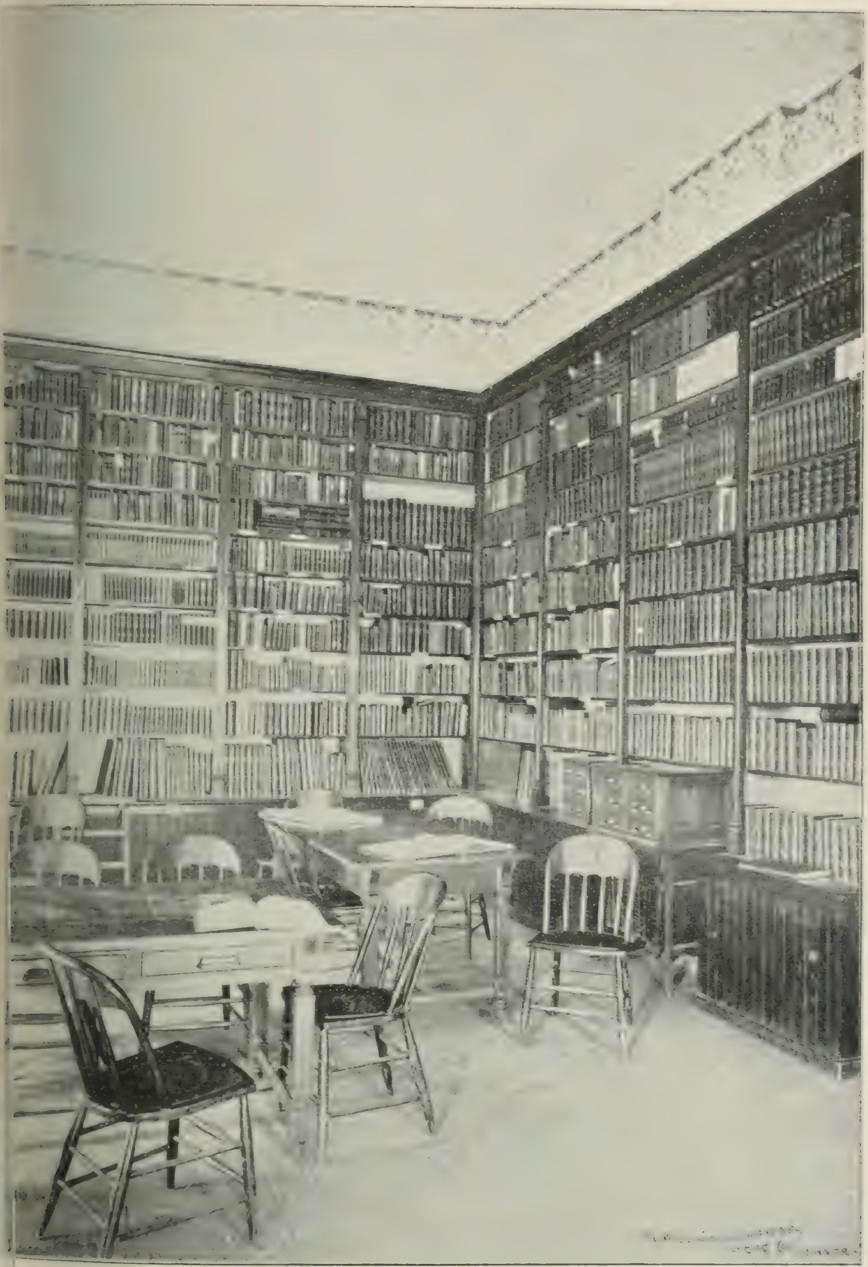


SEWING CLASS—DEPARTMENT OF DOMESTIC ECONOMY

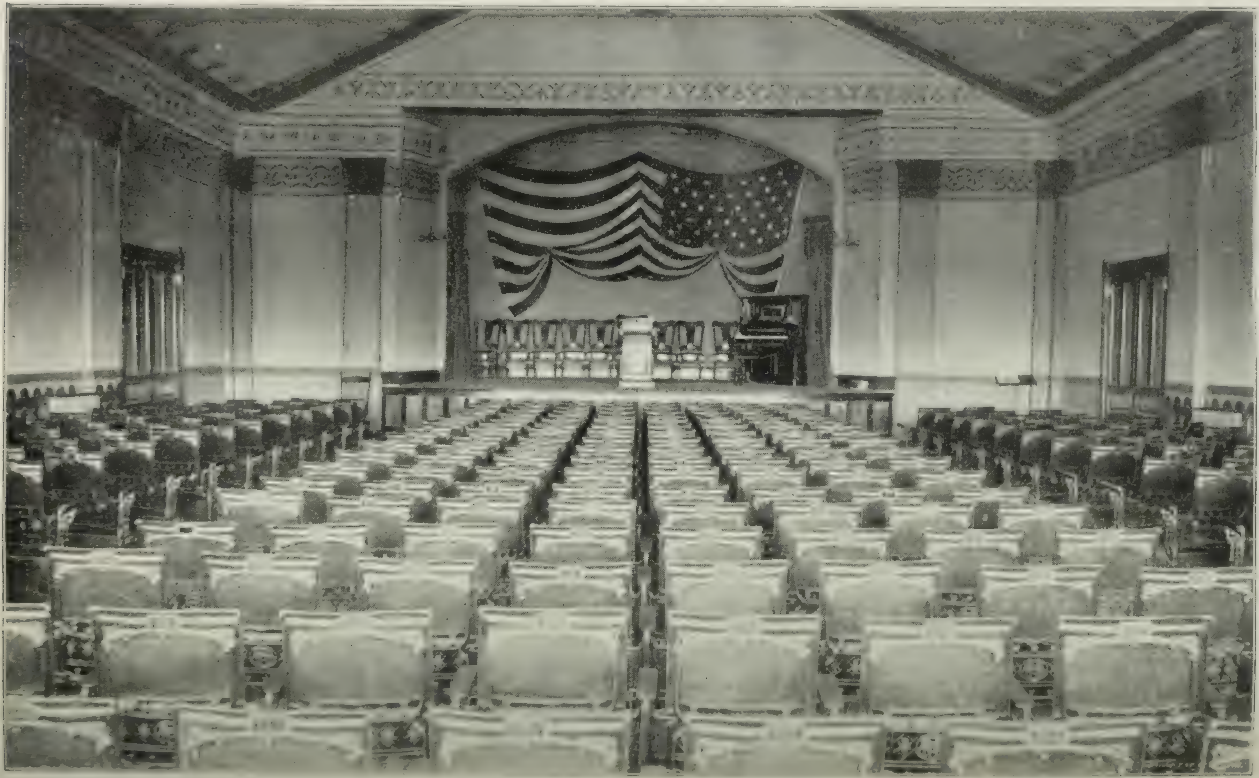


KITCHEN—DEPARTMENT OF DOMESTIC ECONOMY.

COOKING CLASS DEPARTMENT OF DOMESTIC ECONOMY.



CORNER OF LIBRARY.



THE CHAPEL. THREE HUNDRED OPERA CHAIRS.

REGISTER

OF THE

OFFICERS AND STUDENTS

OF

The State Agricultural College

FORT COLLINS, COLORADO

* * *

Courses of Study and General Information

1897-1898

* * *

Published by The State Agricultural College
Fort Collins, Colorado
1898

DENVER, COLO.
THE SMITH-BROOKS PRINTING CO.,
1898.

THE STATE BOARD OF AGRICULTURE

⁂

	POST-OFFICE	TERM EXPIRES
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HON. A. S. BENSON	*Loveland*	1899
HON. JAMES L. CHATFIELD	*Gypsum*	1901
HON. A. LINDSLEY KELLOGG	*Rocky Ford*	1901
HON. B. F. ROCKAFELLOW	*Canon City*	1903
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30832

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P. F. Sharp, B. F. Rockafellow.

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THE AGRICULTURAL EXPERIMENT STATION

FORT COLLINS, COLORADO

⁂

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JOHN J. RYAN, P. F. SHARP,
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C. P. GILLETTE, M. S..........................Entomologist
JAMES E. DuBOIS.................................Secretary
FRANK H. THOMPSON, B. S., Stenographer.

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JACOB H. COWEN, B. S.......................Horticulturist
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FRED ALFORD, B. S..................................Chemist
JOHN E. KITELEY, B. S..............................Chemist
ELMER D. BALL, B. S.........................Entomologist
ROBT. E. TRIMBLE, B. S., Meteorologist and Irrigation Engineer
BERTRAM A. GAGE, B. S........................Dairyman

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Arkansas Valley Station, Rocky Ford, Colorado.

J. E. PAYNE, M. S............................Superintendent
Rainbelt Station, Cheyenne Wells, Colorado.

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⁂

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Secretary of the Faculty.

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Professor of Military Science and Tactics.

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ROBERT E. TRIMBLE, B. S., *Meteorology and Irrigation Engineering.*

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ALLEN P. GREENACRE, B. S., *Forge-Room Work.*

WILLIAM F. GARBE, *Foundry Practice.*

FRANK L. WATROUS, *Agriculture.*

BERTRAM A. GAGE, B. S., *Dairy.*

JACOB H. COWEN, B. S., *Botany and Horticulture.*

CHARLES F. MERGELMAN, *Floriculture and Landscape Gardening.*

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LATHROP M. TAYLOR, B. S., *Stenography and Typewriting.*

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CORA B. THOMAN, B. S., *Principal Preparatory Department.*

Librarian:
MARGUERITE E. STRATTON, B. S.

Stenographer, President's Office:
FRANK H. THOMPSON, B. S.

REGISTER OF STUDENTS

AND

GRADUATES.

REGISTER OF STUDENTS.

1897-1898.*

POST-GRADUATES.

Bertram Alden Gage, B. S., (*Colorado Agricultural College, Class 1897.*)	Fort Collins, Colorado
Archie Jesse Harris, B. S., (*Colorado Agricultural College, Class 1897.*)	Fort Collins, Colorado
Ralph Henry Hess, B. S., (*Colorado Agricultural College, Class 1897.*)	Fort Collins, Colorado
John Wesley Newman, B. S., (*Monroe, Kentucky, Normal School, Class 1888.*)	Lexington, Kentucky
Carl Hall Potter, B. S., (*University of Wisconsin, Class 1892.*)	Palisades, Colorado
Sara Anderson Potter, B. L., (*University of Wisconsin, Class 1893.*)	Palisades, Colorado
Stephen Woodbridge Tracy, B. S., (*Michigan Agricultural College, Class 1896.*)	Detroit, Michigan

SENIOR CLASS.

Emil Affolter	Longmont, Colorado
Herman Overton Brown	Salida, Colorado
Raymond Clinton Calloway	Livermore, Colorado
William Arnett Dickens	Longmont, Colorado
Jesse Walter Goodwin	Estes Park, Colorado
Fred Steck Hotchkiss	Hotchkiss, Colorado
Amos Jones	Anaconda, Colorado
Herbert Charles Matthews	Cheyenne, Wyoming

---

* This record is made prior to the close of the Spring term. The result of the term's work may change the classification somewhat.

Bernard Joseph Prendergast..............Fort Collins, Colorado
Linnie May Rutledge........................Timnath, Colorado
Charles Edward Swann........................Delta, Colorado
Melvin Demertus Williams....................Victor, Colorado
Thomas Jefferson Warren................Fort Collins, Colorado
13

JUNIOR CLASS.

Clifford Spencer Atherley................Fort Collins, Colorado
Aaron Vanderburgh Benson................Loveland, Colorado
Philip Henry Boothroyd......................Arkins, Colorado
Harry Alexander Boyd.......................Harris, Colorado
Lee Raymond Cooke........................Fort Collins, Colorado
Frank Corbin..............................Fort Collins, Colorado
Howard Empfield Emigh..................Fort Collins, Colorado
Newton Monroe Fitch........................Denver, Colorado
Lewis Clifford Hall.........................Canon City, Colorado
William Ralston Headden...............Fort Collins, Colorado
Herman Howard.............................Greeley, Colorado
Addison Lindsley Kellogg................Rocky Ford, Colorado
William Joseph Littleton..................Trinidad, Colorado
Adolph Frederick Lindon....................Bryant, Colorado
Otto Wesley Lunnon.......................Fort Collins, Colorado
Charles William Mayers....................Littleton, Colorado
Harry Clifford Miller.......................Hotchkiss, Colorado
Lily May Miller............................Fort Collins, Colorado
Jacob Cornelus Mulder...............Maxwell City, New Mexico
Charles Sterling Newell....................Berthoud, Colorado
Marguerite Prendergast...................Fort Collins, Colorado
Charles Benjamin Preston...............Fort Collins, Colorado
George Augustus Smith.....................Orchard, Colorado
James Albert Stump.......................Canon City, Colorado
Edward Sharpe Gaige Titus....................Ottawa, Kansas
25

SOPHOMORE CLASS.

Abbie Carleton Alford...................Fort Collins, Colorado
Laura Armstrong...........................Fort Collins, Colorado
Herbert Edward Badger.....................Greeley, Colorado
Roy Hanford Blackman..................Georgetown, Colorado
Rolland Newton Bonnett.................Fort Collins, Colorado

Carl Sperry Bungardt	Kansas City, Missouri
Louis Deane Conant	Monte Vista, Colorado
Luther Dunham Cowan	Evans, Colorado
John Eglington Coy	Fort Collins, Colorado
Clara Mary Cunningham	Fort Collins, Colorado
Thomas McMurtie Donelson	Coulter, Colorado
Nellie May Drake	Fort Collins, Colorado
Earl Douglass	Fort Collins, Colorado
Raymond Ranney Fisk	Fort Collins, Colorado
David Rendell Freeman	Sheridan, Wyoming
Stuart Bennett Garbutt	Fort Collins, Colorado
George Edgar Garrett	Fort Collins, Colorado
Minot Jay Giddings	Fort Collins, Colorado
Florence Alice Goodwin	Estes Park, Colorado
Byron Frank Goodwin	Estes Park, Colorado
Mark Thomas Harned	Livermore, Colorado
Walter Patrick Hurley	Denver, Colorado
Virginia Bates Ish	Fort Collins, Colorado
Preston King	Toponas, Colorado
Clyde David Lang	Gunnison, Colorado
Jasper Loomis	Fort Collins, Colorado
Roy Sylvenes Lumry	Fort Collins, Colorado
Emmet Cleburne McAnelly	Fort Collins, Colorado
Dana Quick McComb	La Veta, Colorado
William Fleming Marshall	Denver, Colorado
Newton Webster Matthews	Boulder, Colorado
Harry Hammond Murray	Fort Collins, Colorado
Thorwald Vifold Norgaard	Gypsum, Colorado
Elizabeth Ann Nugent	Laporte, Colorado
Robert Ansel Pierce	Fort Collins, Colorado
Marie Louise Sharp	Denver, Colorado
Gwendolyn Silcott	Fort Collins, Colorado
Ethel Maud Smith	Fort Collins, Colorado
Edith Pearl Smith	Fort Collins, Colorado
Edwin Whitney Smith	Sedalia, Colorado
Charles Dell Strever	Berthoud, Colorado
Henry Fulton Sturdevant	Steamboat Springs, Colorado
Pauline Welles Taft	Laporte, Colorado
Estes Park Taylor	Loveland, Colorado
Oliver Baker Tomlin	Fort Collins, Colorado
Oma Mary Veazey	Fort Collins, Colorado
Frances May Warren	Laporte, Colorado
Anna Martha Wood	Eaton, Colorado

48.

FRESHMAN CLASS.

Frank Albert Aichelman	Brighton, Colorado
James Henderson Andrews	Fort Collins, Colorado
Lucy Isabelle Armstrong	Fort Collins, Colorado
Edward Richard Baker	Fort Collins, Colorado
Leroy Arnold Baker	Fort Collins, Colorado
Benjamin Arthur Beezley	Paonia, Colorado
Delphina Isabell Betts	Fort Collins, Colorado
Barton Glen Dale Bishopp	Virginia Dale, Colorado
Bradford Ackley Black	Idaho Springs, Colorado
Lewis Leonard Bonnett	Fort Collins, Colorado
Albert Loreine Breniman	Fort Collins, Colorado
William Rudolph Breniman	Fort Collins, Colorado
William Henry Brooks	Laporte, Colorado
Charles Andrew Coleman	Longmont, Colorado
Burt Lorie Collins	Fort Collins, Colorado
Lina Louise Crandall	Fort Collins, Colorado
Gardner Ransom Cushing	Fort Collins, Colorado
William Andrew Dougherty	Fort Collins, Colorado
Elwood Walter Easley	Golden, Colorado
Howard Joshua Faulkner	Fort Collins, Colorado
Herbert Preston Galliher	Hotchkiss, Colorado
Edwin Francis Giddings	Fort Collins, Colorado
Bert Manger Grable	Galena, South Dakota
Ida May Hart	Fort Collins, Colorado
Ralph Walter Haynes	Fort Lupton, Colorado
Mabel Herner	Fort Collins, Colorado
Clifford House	Cheyenne, Wyoming
Ross Dalbey Howard	Fort Collins, Colorado
Elizabeth May Kelly	Fort Collins, Colorado
Blanch Bee Kerrick	Fort Collins, Colorado
Emily Kibler	Fort Collins, Colorado
Grace Kibler	Fort Collins, Colorado
William Garfield Lewis	Timnath, Colorado
Cyrus Erle McComb	La Veta, Colorado
Oro McDermith	Wolcott, Colorado
Dwight Mandeville	Fort Collins, Colorado
Charles Searing Mead	Arkansas City, Kansas
Thomas William Metcalfe	Fort Collins, Colorado
Mabel Ferguson Meyer	Gunnison, Colorado
William Ernest Michaud	Laporte, Colorado
Richard Clarkson Miller	Panora, Iowa

Neils Epperson Norgaard	Gypsum, Colorado
Signe Agneta Norgaard	Gypsum, Colorado
Joseph Newcomb Ostrander	Coulter, Colorado
Robert Bruce Poor	Fort Collins, Colorado
Fred Prator	La Veta, Colorado
Arthur Elsworth Pratt	Fort Collins, Colorado
Ira Delburt Reddington	Lafayette, Colorado
Robert Earl Richardson	Fort Collins, Colorado
Augusta Elizabeth Rohling	Fort Collins, Colorado
Paul Verner Rugh	Fort Collins, Colorado
Glynn Buell Stannard	Fort Collins, Colorado
Ralph Jefferson Stephenson	Fort Collins, Colorado
Edwin Aaron Sutton	Breckenridge, Colorado
Helen Louise Taft	Laporte, Colorado
Frank Guilford Traber	Hamilton, Ohio
Irwin Walker Veazey	Fort Collins, Colorado
Marion Elmore Warren	Laporte, Colorado
Jennie May Welch	New Windsor, Colorado
Robert Chase Woods	Farmington, New Mexico
Nellie May Young	Fort Collins, Colorado
	61.

SUB-FRESHMAN CLASS.

Vernett Allen	Longmont, Colorado
John Lawrence Ankeny	Wheatland, Wyoming
Lorna Elizabeth Annis	Fort Collins, Colorado
Annie Caroline Beach	Fort Collins, Colorado
Edith Anna Beers	Fort Collins, Colorado
Arthur Monroe Bourne	Buena Vista, Colorado
Adelaide Stone Bristol	Fort Collins, Colorado
Clyde Hallett Brown	Fort Collins, Colorado
Harriot May Buckles	Fort Collins, Colorado
Leslie Newton Chatfield	Littleton, Colorado
Arthur Milton Clark	Fort Collins, Colorado
Fred Clifford Cyphers	Harmon, Colorado
Dora Dale	Greeley, Colorado
Charles Detro	Gleneyre, Colorado
Austin Downey	Fort Collins, Colorado
Harry Deen Edwards	Paonia, Colorado
Edward Albert Elliott	Idaho Springs, Colorado
Frederic Meffored Ferrel	Canfield, Colorado
Rudolph Jacob Frick	Colorado Springs, Colorado
Hattie Frances Gage	Fort Collins, Colorado

Harriet Jennie Garrett	Fort Collins, Colorado
Harry Haines Gaume	Fort Collins, Colorado
Henry Gilbert	Oakes, Colorado
Lena May Gilkison	Fort Collins, Colorado
Albert Christian Hanson	Fort Collins, Colorado
Mary Heflebower	Fort Collins, Colorado
Fred Silvester Hopkins	Delta, Colorado
Antoine Jacob	Conejos, Colorado
John Russell James	Spring Hill, New Mexico
Carlton Mortimer Jennings	Greeley, Colorado
Wallace Hazard Jones	Fort Collins, Colorado
Nellie Mary Killgore	Fort Collins, Colorado
Clifford Lansdown King	Idaho Springs, Colorado
Clara Louise Love	Fort Collins. Colorado
Mark Lazarus Love	Glenwood Springs, Colorado
Mabel Lillian Lonsdale	Fort Collins, Colorado
Harry Sharp McNeill	Rico, Colorado
David Fleming Moloney	St. Louis, Missouri
Arthur Garfield Newell	Wray, Colorado
James Dombey Norvell	Fort Collins, Colorado
Oliver Porter Pennock	Bellvue, Colorado
Louis Philip Pressler	Black Hawk, Colorado
Winfred Ripley	Eldred, Colorado
Constantia Meryle Sargent	Fort Collins, Colorado
Eunice Lucretia Sargent	Fort Collins, Colorado
Olive Louise Sheldon	Fort Collins, Colorado
Eber Christopher Shonts	Peyton, Colorado
Fred Stearley	Laporte, Colorado
Clarence Eastman Stratton	Cripple Creek, Colorado
Benton Sylvester	Berthoud, Colorado
Parke Eaton Taylor	Fort Collins, Colorado
Lloyd Edward Temple	Fort Collins, Colorado
Roy True	Hygiene, Colorado
Charles Clyde Urie	Sunshine, Colorado
Ida Eva Walter	Bellvue. Colorado
Eva Cordelia Welch	New Windsor, Colorado
Mabel Cordelia Woods	Fort Collins. Colorado

57.

PREPARATORY CLASS.

Loyal Holmes Abrams	Eagle, Colorado
Scovill Centennial Beardsley	Elgin, Illinois
Margaret Elinor Boller	Fort Collins, Colorado

Victor Bourg	Watson, Colorado
Alexander Bourg	Watson, Colorado
Marion Rexford Buckles	Fort Collins, Colorado
Clayton Carrell Coleman	Fort Collins, Colorado
Carrie Augusta Deavers	Fort Collins, Colorado
Howard Orson Dix	Fort Collins, Colorado
John Lee Frieand	Hotchkiss, Colorado
Graham Fuller	Fort Collins, Colorado
Grace Alice Gant	Fort Collins, Colorado
John Fena Garrett	Fort Collins, Colorado
Ida Olive Gilkison	Fort Collins, Colorado
Eugene Norman Glover	Fort Collins, Colorado
Ada Irene Hart	Fort Collins, Colorado
Alta May Harrington	Fort Collins, Colorado
Mortimer Hawley	Fort Collins, Colorado
Milton Jarrell	Folsom, New Mexico
Charles Marshall Jones	Fort Collins, Colorado
Charles William Kelly	Fort Collins, Colorado
Thomas Franklin Key	Canfield, Colorado
Minnie Reed Key	Canfield, Colorado
Edna Ella Love	Fort Collins, Colorado
Grace Julia Manning	Elkton, Colorado
Charles Miller	Fort Collins, Colorado
Jesse Rice Moore	Fort Collins, Colorado
Millard Eugene Park	Kansas City, Missouri
Jonas Alfred Peterson	Bryant, Colorado
Ella Sophia Peterson	Buford, Colorado
Samuel Ralph Piatt	Fort Collins, Colorado
Joseph Francis Reed	Fort Collins, Colorado
James Robertson	Meeker, Colorado
Rosa Ann Smith	Holyoke, Colorado
Frank William Sweeney	Fort Collins, Colorado
Pedro Tixier	Vigil, New Mexico
William Albert Thomas	Fort Collins, Colorado
James Thompson	Fort Collins, Colorado
Ethel Katherine Trimble	Fort Collins, Colorado
Hattie Vinnie Warren	Sheridan, Wyoming
Margaret Daisy Welch	Fort Collins, Colorado
Julia Cotten Wood	Eaton, Colorado
Jessie Sarah Woods	Fort Collins, Colorado
Grace Belle Woods	Fort Collins, Colorado
Dudley Howard Yerkes	Pueblo, Colorado

45.

COMMERCIAL DEPARTMENT—SENIOR CLASS.

Charles Ludvic Arnell	Alamosa, Colorado
William Azariah Doty	New Windsor, Colorado
Frank Louis Garnick	Fort Collins, Colorado
Richard Earl Hammond	Fort Collins, Colorado
Agnes Louise Hawley	Fort Collins, Colorado
Pearl Hays	Loveland, Colorado
Noble Lane	Laporte, Colorado
Julius Peter Oleson	Gypsum, Colorado
Bessie Carrie Wood	Eaton, Colorado
	9.

COMMERCIAL DEPARTMENT—JUNIOR CLASS.

Edward Affolter	Longmont, Colorado
Edgar Delano Avery	Fort Collins, Colorado
Arthur William Bach	Salida, Colorado
Byron King Baird	Cheyenne, Wyoming
Ray Jasper Baker	Fort Collins, Colorado
Robert Baldwin	Nashville, Tennessee
Frank Otis Barlow	Livermore, Colorado
Clark Levi Boughton	Fort Collins, Colorado
Aureli Sarah Boughton	Fort Collins, Colorado
John Edward Brooks	Laporte, Colorado
Frederick William Brose	Fort Collins, Colorado
Harry Hersey Cannon	Lafayette, Colorado
Eunice Chatfield	Littleton, Colorado
Ida Clark	Fort Collins, Colorado
Lester Wescott Clark	Monte Vista, Colorado
Merle Cooper Dilts	Fort Collins, Colorado
Sarah Gertrude Dix	Fort Collins, Colorado
Archie Colder Dunmead	Adam's Mills, Ohio
Frank Augustus Dudrow	Longmont, Colorado
John William Durkee	Delta, Colorado
James Elliott	Timnath, Colorado
Willis Henry Fassett	Monte Vista, Colorado
Ralph Melvon Gallup	Buena Vista, Colorado
Dudley Golding-Dwyre	Fort Collins, Colorado
Percy Golding-Dwyre	Fort Collins, Colorado
Cora Elizabeth Hamlin	Sulphur Springs, Colorado
Frank Gallup Haynes	Fort Lupton, Colorado
Clara Ella Herner	Fort Collins, Colorado

George Henry Hook	Sulphur Springs, Colorado
Jacob Edwards Horner	Fort Collins, Colorado
Herbert Heath Huffman	Fort Collins, Colorado
Fred Kirk Huffman	Fort Collins, Colorado
George Franklin Kern	New Windsor, Colorado
Myrtle Viola Larsen	Fort Collins, Colorado
Frank Haynes Lonsdale	Fort Collins, Colorado
Alexander McDougall	Bordeaux, Wyoming
George Dick McDougall	Bordeaux, Wyoming
Alanson Richard McGraw	Bailey, Colorado
Arthur Dell McKee	Gunnison, Colorado
Lulu Mayfield	Longmont, Colorado
William Thomas Mayfield	Longmont, Colorado
Rose Miller	Fort Collins, Colorado
James McKean Moore	Fort Collins, Colorado
William Miller Mosman	Fort Collins, Colorado
William Henry Mullen	Eaton, Colorado
Hjalmer Willard Norgaard	Gypsum, Colorado
William Edward Page	Victor, Colorado
George Watrous Patterson	Fort Collins, Colorado
Josephine Pegg	Fort Collins, Colorado
Cecil Gilfillan Philip	Fort Lupton, Colorado
Nellie Powers	Idaho Springs, Colorado
Clarence Powers	Fort Collins, Colorado
Clara Letitia Preston	Fort Collins, Colorado
Pearl Maggie Redding	Craig, Nebraska
George Washington Richardson	Fort Collins, Colorado
Fred Wilmot Richards	Fort Collins, Colorado
Walter Scott	Fort Collins, Colorado
David Severance	Greeley, Colorado
Mortimer Joseph Slate	Fort Lupton, Colorado
Walter Michael Smith	Idaho Springs, Colorado
Lizzie Stearley	Laporte, Colorado
Marguerite Valentina Stevison	Cripple Creek, Colorado
Florence May Stewart	Fort Collins, Colorado
Henry William Suiter	Fort Collins, Colorado
Elizabeth Frances Sullivan	Salida, Colorado
Earl Levi Tedmon	St. Cloud, Colorado
Lee Harper Walker	Loveland, Colorado
Minnie Regina White	Durango, Colorado
Zelma Isabelle Woods	Fort Collins, Colorado
Joseph Harris Woods	Fort, Collins, Colorado

70.

SPECIAL-CLASS STUDENTS.

Verna Belle Chapman	Loveland, Colorado
Della Josephine Gaume	Corwin, Kansas
Charles Golding-Dwyre	Fort Collins, Colorado
Ray Le Masters	State Center, Iowa
Margaret Murray	Fort Collins, Colorado
Georgie Hazel Scott	Tucson, Arizona
Mattie Newcomb Shoemaker	Denver, Colorado
Inez Smith	Longmont, Colorado
Fred William Stover	Fort Collins, Colorado
	9.

SUMMARY.

	Male.	*Female.*	*Total.*
Post-Graduates	6	1	7
Seniors	12	1	13
Juniors	24	1	25
Sophomores	33	15	48
Freshmen	45	16	61
Sub-Freshmen	38	19	57
Preparatory Class	28	17	45
Commercial Course—Seniors	6	3	9
Commercial Course—Juniors	51	19	70
Special-Class Students	2	7	9
Total	245	99	344

The students represent twelve states and two territories, as follows: Colorado, 314; Illinois, 1; Iowa, 2; Kansas, 3; Kentucky, 1; Michigan, 1; Missouri, 3; Nebraska, 1; Ohio, 2; South Dakota, 1; Tennessee, 1; Wyoming, 8; Arizona, 1; and New Mexico, 5. Total, 344.

The Colorado Students represent thirty-three counties, as follows: Arapahoe, 12; Boulder, 17; Clear Creek, 6; Chaffee, 5; Conejos, 2; Delta, 9; Dolores, 1; Douglas, 1; Eagle, 7; El Paso, 8; Fremont, 3; Garfield, 1; Gilpin, 1; Grand, 4; Gunnison, 3; Huerfano, 3; Jefferson, 1; La Plata, 1; Larimer, 190; Las Animas, 1; Mesa, 2; Morgan, 1; Otero, 1; Park, 1; Phillips, 3; Pitkin, 2; Pueblo, 1; Rio Blanco, 2; Rio Grande, 3; Routt, 2; Summit, 1; Weld, 18; and Yuma, 1. Total, 314.

GRADUATES.

1884.

George H. Glover, B. S., (D. V. M., Iowa Agricultural College), Veterinary Surgeon....1315 23d St., Denver, Colorado
Elizabeth Coy, B. S., (Mrs. James W. Lawrence)........... ....Fort Collins, Colorado
Leonidas Loomis, B. S., Stockman.........Fort Collins, Colorado
3.

1885.

Cora B. Blinn, B. S.,....11 North Broad St., Trenton, New Jersey
Edna L. Hice, B. S., Teacher............Fort Collins, Colorado
Lelia L. Loomis, B. S., (Mrs. T. H. Robertson).............. ....Fort Collins, Colorado
Grace Espy Patton, B. S., (M. S., 1897), Professor of English and Sociology, State Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction, 1897—.................................Denver, Colorado
Robert E. Trimble, B. S., Assistant Meteorologist, State Agricultural College of Colorado.....Fort Collins, Colorado
Helen White, B. S., (Mrs. John Rigden)....Fort Collins, Colorado
6.

1886.

Wilbert J. Sickman, B. S., (Clerk of the District Court of Larimer County until 1896)..........Fort Collins, Colorado
1.

1887.

Eleanor F. Gill, B. S.,....................Fort Collins, Colorado
Marguerite E. Stratton, B. S., Librarian State Agricultural College of Colorado, 1895—..........Fort Collins, Colorado
Lerah S. Stratton, B. S., (Mrs. P. J. McHugh), Librarian State Agricultural College of Colorado, 1887-1891...... ....Fort Collins, Colorado

Edwin G. Nettleton, B. S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer, Sonora and Sinaloa Canal, Mexico, 1893; Merchant and Engineer..Nampa, Idaho

4.

1888.

Lewis A. Coffin, B. S., Assistant Chemist, State Agricultural College of Colorado, 1888-1889; Farmer..Longmont, Colorado

Harvey H. Griffin, B. S., Superintendent of the San Luis Valley Experiment Station, 1889-1891; Superintendent New Mexico Experiment Station at Aztec, 1892-1897; Superintendent Arkansas Valley Experiment Station.......................................Rocky Ford, Colorado

Josephine Lee, B. S., Teacher City Schools.....Boulder, Colorado

Jennie E. McLain, B. S., Professor of History and Geography, State Normal School, Peru, Nebraska, 1891-1897; Professor of History and Literature, State Agricultural College of Colorado, 1897—...........Fort Collins, Colorado

4.

1889.

Lucy Bell, B. S., (Mrs. C. V. Benson).........Loveland, Colorado

Arthur L. Davis, B. S., (M. D., 1895, Gross Medical College, Denver), Resident Physician, St. Anthony's Hospital...Denver, Colorado

2.

1890.

Clarence V. Benson, B. S., (LL. B., University of Michigan, 1892; M. S., State Agricultural College of Colorado, 1896), Cashier, Bank of Loveland...............Loveland, Colorado

Velma V. Benson, B. S., (Mrs. A. Beebe)......Loveland, Colorado

Burt C. Buffum, B. S., (M. S., 1894), Professor of Agriculture and Horticulture, University of Wyoming; Vice-Director of Experiment Station...........Laramie, Wyoming

Charles A. Duncan, B. S., Irrigation Assistant, Agricultural College of South Dakota, 1891; Superintendent of the San Luis Valley Experiment Station, 1893-1896; Farmer..Timnath, Colorado

Newton C. Garbutt, B. S., Attorney-at-law, Fort Collins, Colorado

Helen E. Lunn, B. S., Bookkeeper.........Fort Collins, Colorado

Harry R. Temple, B. S., Millman, Utica Stamp Mills..Ward, Colorado

Cora B. Thoman, B. S., Principal Preparatory Department, State Agricultural College of Colorado, Fort Collins, Colorado

Mary L. Weaver, B. S., (B. Ph., Ohio State University.)........................... 231 W. Church St., Urbana, Ohio

9.

1891.

Charles R. Evans, B. S., Merchant........Fort Collins, Colorado

Minnie E. McLain, B. S...................Fort Collins, Colorado

John S. Calkins, B. S., Farmer.................Harris, Colorado

3.

1892.

Charles W. Beach, B. S., (B. S., University of Illinois, 1894), Assistant Engineer, Great Plains Storage and Irrigation Co.............................Las Animas, Colorado

Frank Beach, B. S., (M. S., 1896) Superintendent San Luis Valley Experiment Station, 1893-1895; Professor of Agriculture and Irrigation Engineering, Montana State Agricultural College.......................Bozeman, Montana

Alice Bell, B. S., (Mrs. Samuel Boothroyd).....Flagstaff, Arizona

Samuel Bell, B. S., (M. D., University of Denver, 1896) Resident Physician, St. Luke's Hospital, 1897; Physician...Denver, Colorado

Don A. Carpenter, B. S., Draughtsman and Traveling Salesman, El Paso Machinery Company..........El Paso, Texas

Porter J. Preston, B. S., Assistant State Engineer, Colorado, 1893-1896; Assistant Engineer, Great Plains Storage and Irrigation Company..................Las Animas, Colorado

Albert J. Sedgwick, B. S., Residence unknown.

Lewis L. Stimson, B. S., County Surveyor of Weld County, 1895-1897; City Engineer.................Greeley, Colorado

Frank H. Thompson, B. S., Stenographer, State Agricultural College of Colorado..................Fort Collins, Colorado

9.

1893.

John Bloomfield, B. S., Superintendent and Manager Phyllis Canal ....Nampa, Idaho

Samuel Boothroyd, B. S., Professor of Mathematics and Astronomy, Mount Morris College, Illinois, 1893-1897; Assistant Astronomer, Lowell Observatory...Flagstaff, Arizona

Charles J. Gilkison, B. S., Gilkison and Son, Commission Merchants ....Fort Collins, Colorado

Ida M. Lewis, B. S., (Mrs. T. J. Douglas), Deceased..Timnath, Colorado

William J. Ralph, B. S., Deputy Post-Master.. Fort Collins, Colorado

Raymond F. Walter, B. S., Surveyor and Engineer, (Baker and Walter)...........Greeley and Fort Morgan, Colorado

William W. Willard, B. S., Merchant and Post-Master..Twin Lakes, Colorado

7.

1894.

Philo K. Blinn, B. S., Superintendent Arkansas Valley Experiment Station, 1895-1897; Horticulturist...Rocky Ford, Colorado

Jacob H. Cowen, B. S., Assistant Botanist and Horticulturist, State Agricultural College of Colorado, Fort Collins, Colorado

Will H. Fairfield, B. S., Farm Superintendent, University of Wyoming..........................Laramie, Wyoming

Minnie F. Harrington, B. S., (Mrs. W. F. Gilkison),...Laramie, Wyoming

Herbert S. Kendall, B. S., Superintendent of Experiment Station, Landers, Wyoming, 1894-1896; Kendall and Foster, Booksellers......................Denver, Colorado

Celia May Southworth, B. S., (Mrs. Frank Beach), Librarian State Agricultural College of Colorado, 1891-1895...Bozeman, Montana

Harlan Thomas, B. S., Architect, McPhee Building...Denver, Colorado

7.

1895.

Jean B. Balcomb, B. S., U. S. Deputy Mineral Surveyor with Geodetic Survey.........................Denver, Colorado

Herbert A. Black, B. S., with Halleck and Howard Lumber Company............................Denver, Colorado

Edith G. Boothroyd, B. S.,.....................Arkins, Colorado

Henry A. Calkins, B. S., Assistant Engineer, Mollie Gibson Mine, 1896; Medical Student..............Denver, Colorado

Edward P. Cooke, B. S., Iowa Representative, Franklin Square Bible House,...702 Observatory Building, Des Moines, Iowa

Loren B. Curtis, B. S., Assistant Engineer, Denver Tramway Company, 1897; Assistant Manager, Terrible Mine, Isle, Custer County.........P. O. Address, Cañon City, Colorado

William F. Gilkison, B. S., Instructor in Mechanical Engineering, University of Wyoming............Laramie, Wyoming

Ella G. Goldsborough, B. S., Stenographer..Fort Collins, Colorado

Seth C. Lewis, B. S., Farmer.................Timnath, Colorado

Edgar A. Mead, B. S., Law Student..........Greeley, Colorado

George W. Nelson, B. S., Assistant Superintendent Olive Mining Co.,..................Grand Forks, British Columbia
Frances C. Schelt, B. S., Teacher..........Fort Collins, Colorado
Walter K. Starbird, B. S., Stockman........Livermore, Colorado
13.

1896.

Fred Alford, B. S., Assistant Chemist, State Agricultural College of Colorado,.................Fort Collins, Colorado
Henry F. Alps, B. S., Teacher..............Loveland, Colorado
William E. Becker, B. S., Teacher.....Poncha Springs, Colorado
Florence J. Boothroyd, B. S.,...................Arkins, Colorado
Alfred H. Bungardt, B. S., Student State University,...Columbia, Missouri
Allen P. Greenacre, B. S., Instructor Department of Mechanical Engineering, State Agricultural College of Colorado, ...Fort Collins, Colorado
Robinson W. Hawley, B. S., Assistant Engineer, Western Homestead Irrigation Company..Albuquerque, New Mexico
John E. Kiteley, B. S., Assistant Chemist, State Agricultural College of Colorado............Fort Collins, Colorado
Richard A. Maxfield, B. S., Stenographer.......Denver, Colorado
Abner S. McKee, B. S., Mechanical Engineer, Manager Delta County Telephone Co....................Paonia, Colorado
Grafton S. Norman, B. S., Post-Graduate Student...Hamilton, Ohio
Robert W. Sears, B. S., Stockman and Merchant...Greenhorn, Colorado
12.

1897.

May A. Dievendorf, B. S., Clerk..........Fort Collins, Colorado
Bertram A. Gage, B. S., Dairyman, State Agricultural College of Colorado....................Fort Collins, Colorado
Martha R. Gilkison, B. S.,................Fort Collins, Colorado
Robert S. Gray, B. S.,....................Wheatland, Wyoming
Archie J. Harris, B. S., Post-graduate Student..Fort Collins, Colorado
Ralph H. Hess, B. S., Teacher and Post-Graduate Student.......................................Fort Collins, Colorado
Alta E. Lewis, B. S.,.......................Timnath, Colorado
Smith D. Philip, B. S.,...................Fort Lupton, Colorado
Anna L. Picken, B. S.,..................Fort Collins, Colorado
Mary E. Prendergast, B. S.,..............Fort Collins, Colorado
David J. Richards, B. S., Deputy Post-Master...Salida, Colorado
11.

OFFICERS OF THE ALUMNI ASSOCIATION.

President	Cora B. Thoman.
Vice-President	Philo K. Blinn.
Secretary	Allen P. Greenacre.
Treasurer	Jacob H. Cowen.

COURSES OF STUDY.

PREPARATORY YEAR.

FIRST TERM.

American Prose	Swinton
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

SECOND TERM.

English Prose	Swinton
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

THIRD TERM.

American and English Verse	Selections
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

Military Drill and Physical Culture Daily.

SUB-FRESHMAN YEAR.

FIRST TERM.

Algebra	Wentworth
Lessons in English	Lockwood
Civil Government	Townsend

Drawing.

Afternoons: { Farm, ⅔; Shop, ⅓.
Domestic Science.

SECOND TERM.

Algebra	Wentworth
American Literature	Hawthorne and Lemmon
Lessons in English	Lockwood

Drawing.

Afternoons: { Shop.
Domestic Science.

THIRD TERM.

Algebra	Wentworth
American Literature	Hawthorne and Lemmon
Lessons in English	Lockwood

Drawing.

Afternoons: { Shop, ⅓; Garden, ⅔.
Domestic Science.

Military Drill and Physical Culture Daily.

FRESHMAN YEAR.

FIRST TERM.

Geometry	Beman and Smith
Agriculture *or* Carpentry and Joinery	Gulley *or* Goss
Botany	Gray
General History	Sheldon

Afternoons: Garden, ⅔; Shop, ⅓.
Domestic Science.

SECOND TERM.

Geometry	Beman and Smith
Rhetoric and Rhetorical Analysis	Genung
General History	Sheldon

Drawing.

Afternoons: Shop.
Domestic Science.

THIRD TERM.

Solid Geometry	Beman and Smith
Botany	Gray
Rhetoric and Rhetorical Analysis	Genung

Mechanical Drawing.

Afternoons: Shop, ⅓; Farm, ⅔.
Domestic Science.

Military Drill and Physical Culture Daily.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.

All lead to the degree of Bachelor of Science.

SOPHOMORE YEAR.

FIRST TERM.

Algebra	Wentworth
Literature	Kellogg
Physiology	Martin

Drawing.

Afternoons: Shop, A., C., M.
Domestic Science.

SECOND TERM.

Trigonometry	Wentworth
Physiology	Martin
Physics	Deschanel
Farm Buildings, A.	Lectures
Household Hygiene, L.	Public Health Essays
Descriptive Geometry, C., M.	Faunce

Afternoons: Physiological Laboratory, ½.
Physical Laboratory, ½.

THIRD TERM.

Physics	Deschanel
Surveying, A., C., M.	Raymond
Domestic Science, L.	Lectures
Stock Breeding, A.	Warfield
Algebra	Wentworth
Psychology, L.	Halleck
Descriptive Geometry, C., M.	Faunce

Afternoons: Surveying, A., C., M., ½.
Dairying, L., ½.

Physical Laboratory, A., C., M., L., ½.

Military Drill and Physical Culture Daily.

Rhetorical work for all students one hour per week.

AGRICULTURAL COURSE.

JUNIOR YEAR—FIRST TERM.

Stock Feeding	Stewart
Horticulture	Lectures
Physics	Deschanel
Landscape Gardening, ½	Lectures
Meteorology, ½	Waldo

Afternoons: { Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Physiological Botany	Strasburger
Elementary Geology	Tarr
Zoölogy	Orton
Zoölogical Laboratory.	

Afternoons: Botanical Laboratory.

THIRD TERM.

Recent History	McCarthy and Library
Entomology	J. B. Smith
Systematic Geology	Dana
Irrigation Hydraulics	Lectures

Afternoons: { Entomological Laboratory, ⅖.
Farm, ⅗.

Military drill daily. Rhetorical work one hour per week throughout the course.

AGRICULTURAL COURSE.

SENIOR YEAR—FIRST TERM.

Chemistry	Remsen
Dairying	Gurler
Literature	Hawthorne and Lemmon
Constitution of the United States	Andrews

Afternoons: Dairying, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Horticulture	Lectures
Agriculture	Lectures
Logic	Gregory

Afternoons: Chemical Laboratory.

THIRD TERM.

Agricultural Chemistry	Johnson—Aikman
Political Economy	Walker
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Chemical Laboratory, ½.
Garden, ½.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Foundry Practice	West
Boilers	Wilson
Physics	Deschanel
Higher Algebra	Wentworth

Afternoons: Physical Laboratory, ⅗.
Shop, ⅖.

SECOND TERM.

Logic	Gregory
Elementary Geology	Tarr
Analytic Geometry	Wentworth
Drawing	Instrumental

Afternoons: Shop.

THIRD TERM.

Drawing	Instrumental
Calculus	Taylor
Principles of Mechanism	Stahl and Woods
Workshop Appliances	Shelly—Rose

Afternoons: Shop.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Drawing	Instrumental
Calculus	Taylor
Chemistry	Remsen
Steam Engine	Holmes

Afternoons:
Shop, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Drawing	Instrumental
Strength of Materials	Merriman
Transmission of Power	Lectures

Afternoons:
Chemical Laboratory, ⅗.
Testing Materials, ⅖.

THIRD TERM.

Steam Engineering	Lectures
Special Machines	Lectures
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Steam Engineering Laboratory.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Irrigation Engineering	Wilson and Flynn
Physics	Deschanel
Higher Algebra	Wentworth
Horticulture	Lectures

Afternoons: Physical Laboratory, ⅗.
Horticulture, ⅖.

SECOND TERM.

Higher Surveying	Johnson
Analytic Geometry	Wentworth
Elementary Geology	Tarr
Drawing	Instrumental

Afternoons: Field and Laboratory work in Engineering.

THIRD TERM.

Irrigation Hydraulics	Lectures
Calculus	Taylor
Map and Topographical Drawing	————

Afternoons: Field Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Calculus	Taylor
Chemistry	Remsen
Constitution of the United States	Andrews
Reservoirs and Dams, ½	Lectures
Meteorology, ½	Waldo

Afternoons: Engineering, ⅖.
Chemical Laboratory, ⅗

SECOND TERM.

Chemistry	Remsen
Materials of Engineering	Merriman
Logic	Gregory
Drawing	Instrumental

Afternoons: Chemical Laboratory, ⅗
Testing of Materials, ⅖.

THIRD TERM.

Hydraulics	Lectures
Trusses and Bridges	Merriman
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

LADIES' COURSE.

JUNIOR YEAR—FIRST TERM.

Domestic Science, Chemistry of Cooking	Richards
Landscape Gardening, ½	Lectures
Meteorology, ½	Waldo
Physics	Deschanel
Horticulture	Lectures

Afternoons: Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Domestic Science, Science of Nutrition	Atkinson
Elementary Geology	Tarr
Zoölogy	Orton
Zoölogical Laboratory	————

Afternoons: Domestic Science.

THIRD TERM.

Domestic Science, Home Nursing	Weeks
Geology	Dana
Recent History	McCarthy and Library
Entomology	J. B. Smith

Afternoons: Domestic Science.
Latin (Elective.)
German (Elective.)

LADIES' COURSE.

SENIOR YEAR—FIRST TERM.

Constitution of the United States	Andrews
Ethics	Mackenzie
Chemistry	Remsen
Literature	Hawthorne and Lemmon

Afternoons:
- Library in Literature, ⅖.
- Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Sociology	Small and Vincent
Logic	Gregory
Philosophy of History	Andrews

Afternoons: Chemical Laboratory.

THIRD TERM.

Political Economy	Walker
Chemistry of Common Life	Johnston
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons:
- Sociology, ½.
- Recent History, ½.
- Latin (Elective.)
- German (Elective.)

COMMERCIAL DEPARTMENT.

JUNIOR YEAR—FIRST TERM.

General History	Sheldon
Plane Geometry	Beman and Smith
Elementary Bookkeeping	Sadler
Commercial Arithmetic and Rapid Calculation	Sadler

Spelling and Penmanship.

SECOND TERM.

General History	Sheldon
Plane Geometry	Beman and Smith
Rhetoric and Rhetorical Analysis	Genung
Advanced Bookkeeping	Sadler
Commercial Arithmetic and Rapid Calculation	Sadler

Spelling and Penmanship.

THIRD TERM.

Rhetoric and Rhetorical Analysis	Genung
Solid Geometry	Beman and Smith
Commercial Arithmetic and Rapid Calculation	Sadler
Business Practice and Banking	—

Penmanship and Business Correspondence.

COMMERCIAL DEPARTMENT.

SENIOR YEAR—FIRST TERM.

Literature	Kellogg
Constitution of the United States	Andrews
Stenography	Scott-Browne
Business Geography	————

Typewriting.

SECOND TERM.

Logic	Gregory
Sociology	Small and Vincent
Stenography	Scott-Browne
Business Law	Musselman

Typewriting.

THIRD TERM.

Political Economy	Walker
Sociology	Small and Vincent
Stenography	Scott-Browne
Business Law	Musselman

Typewriting and Office Practice.

DEPARTMENTS OF INSTRUCTION.

AGRICULTURE.

By means of intelligent experimental work, conducted on the College Farm and at the Experiment Station, in which student labor is given a prominent place, a very practical training is given.

The authorities are making every effort to provide a thorough course of instruction, in the School of Agriculture, designed especially to educate the students for agricultural pursuits and scientific investigations.

Special agricultural work is begun in the Fall term of the Freshman year. In the Sophomore year, farm buildings and farm roads receive attention. In the Spring term of this year, the young men receive instruction in stock-breeding and the ladies take work in dairying.

In the third term of the Junior year, there is further instruction in regard to soils and practical irrigation. Part of the Junior and part of the Senior year are given to the subject of live stock in its various branches; the care and feeding of horses, cattle, sheep, and hogs; the preparation of food, ensilage, soiling, etc.

Dairying is taught, the first term of the Senior year, by means of lectures and recitations in the forenoon. The exercises of the afternoon relate to butter making, milk testing, and the handling of dairy apparatus.

In the third term of the Senior year, the students take up the general subject of Agricultural Chemistry, with special reference to the fertilization and cultivation of crops.

The whole course is illustrated by the experimental work, always in progress, and is supplemented by daily practical work on the farm and in the laboratory.

The four-year Agricultural Course is designed to give to the student a thorough knowledge of the principles and practices of Agriculture, and at the same time to provide enough training in other branches of learning to furnish a well-rounded education that shall fit him for the general affairs of life.

BOTANY AND HORTICULTURE.

Botany—The study of Botany begins with the Freshman year. The Fall term is devoted mainly to Structural Botany. The plant as an individual is studied as to its parts or organs—the relation each part bears to the whole—the variations in the parts, and the uses they serve. Roots, branches, buds, leaves, flowers, and fruits are placed in the stduents' hands, and the technical descriptive terms are learned by applying them directly to the plants.

Gray's *Lessons* is used as text to supplement the instruction from the plants themselves. A few lectures on classification and the relations of plants to each other are given toward the close of the term.

The Spring term of the same year is devoted to Systematic Botany. Dissecting microscopes and necessary tools are furnished and plants are each day supplied for analysis. Students are taught the application of the principles learned during the first term, so that they may understand the methods of determining the names of plants. The great variety of plants at hand enables the student to become familiar with all the leading natural orders. Written descriptions of the plants analyzed are required. Coulter's *Manual of Rocky Mountain Botany* is the text-book used.

Physiological Botany—In the Winter term of the Junior year, the Agricultural students study vegetable physiology and the minute structure of plants, using as a text-book Strasburger's *Practical Botany.*

Compound microscopes are supplied and the Botanical laboratory is open to members of the class two hours each afternoon.

An herbarium of native and foreign plants and the green-house furnish material for study.

A portion of this term is devoted to Cryptogamic Botany, special attention being given to rusts, smuts, and mildews injurious to plants.

The laboratory is well equipped with books of reference and with all necessary apparatus and reagents.

Horticulture—Instruction in Horticulture is given by lectures. The first course of thirteen weeks, in the Fall term of the Junior year, deals mainly with methods. Under the general head of vegetable-gardening, the principal topics considered are—the best soil and situation for a garden; manner of laying out a garden; irrigation of garden crops; rotation of crops; methods of planting and management; composts and commercial fertilizers; care of tools; construction, management, and uses of hot-beds and cold-frames; harvesting, marketing, and storing vegetables.

Brief historical notes, and full cultural directions, are given concerning all the vegetable plants commonly grown in gardens.

Small fruit culture is next taken up; each kind is considered in detail as to its history, propagation, cultivation, harvesting, marketing, the best varieties, and the diseases to which it is subject.

Then follows a series of lectures upon methods of plant propagation, including a thorough discussion of budding and grafting.

Plants, tools, and other appliances are provided for class-room use in giving practical illustrations of the subject treated.

A portion of this term is devoted to Forestry. Lectures are given on the gathering and preservation of forest-tree seed, the planting of seed, and the care of seedlings; on the value of trees for timber and ornament, for hedges, screens, and shelter belts.

A second course of lectures during the Winter term of the Senior year treats of the theory of Horticulture, and considers in detail the underlying principles of garden practice; lectures are given upon the history of cultivated plants, variation of plants under cultivation, as influenced by climate, latitude, altitude, and general surroundings; cross-fertilization and hybridization. Pomology is then taken up, and the theory and practice of orchard management considered in detail.

Floriculture is also treated on such topics as the construction, heating, and management of green-houses, the propagation, cultivation, and management of green-house plants for commercial or private purposes.

Landscape Gardening—One-half of the Fall term of the Junior year is allotted to this study. The general principles of the art are taught by lectures and practical instruction given in the selection and laying out of city and country places. The principal topics are, the selection of a place, the location of buildings, drives, and walks, what to plant and how to plant. The works of Downing and Kemp are used as books of reference.

ZOOLOGY AND ENTOMOLOGY.

Physiology—This subject is taught during the first and second terms of the Sophomore year, Martin's *Human Body* being used as a text-book. Aside from the daily recitations, students spend two hours a day, during the first half of the second term, in the laboratory, to study human and comparative osteology and histology, and to dissect anaesthetized animals for the purpose of making a careful study of the various organs and tissues.

The laboratory is well-equipped, possessing, among other things, a fine series of mounted skeletons, an expensive manikin (a life-sized model of the human body so dissected as to show nearly every tissue and organ that can be seen in an actual dissection) enlarged *papier mache* models of the eye, ear, brain, and other important parts; also, compound and dissecting microscopes, microtomes, and dissecting instruments.

Zoology—Zoölogy is taught in the second term of the Junior year in the Agricultural Course and the Ladies' Course. This branch of natural science is taught by means of a text-book and actual demonstrations in the laboratory. Each student is furnished with typical forms of the different branches of the animal kingdom, which he studies carefully, making drawings and taking notes. In this manner the student acquires a practical knowledge of the structure and classifications of animals, that he can not obtain by mere study of books.

Microscopes, dissecting tools, and all necessary equipment for laboratory work are furnished free, each student being required to care for his own instruments.

Entomology—Work begins in the third term of the Junior year in the Agricultural Course, and is furthered by the use of a text-book with laboratory work. Each student also gets together and classifies a collection of insects representing all the orders.

Particular attention is given to the economic features of this study. Those insects known to be injurious are given special attention, and the students are made familiar with their habits and remedies. Students also prepare the principal insecticide substances and apply them for the destruction of insects.

In connection with this department are a good apiary and honey-house, thoroughly equipped with the most modern appliances, and students so desiring are taught and allowed to put into practice all the manipulations of the apiary.

Students taking this study are required to purchase J. B. Smith's *Economic Entomology.*

CHEMISTRY AND GEOLOGY.

Chemistry—It is the object to give the student an opportunity to acquire a thorough mastery of the elementary principles of chemical science. To attain this object, theory and practice are made to go hand in hand. In the first term of the Senior year the class receives a series of lectures, accompanied by text-book work, upon the general theory of the science, its history and development. In this course of lectures are discussed the subjects of acids, bases and salts, and the principles of chemical philosophy. The natural history, chemical and physical properties of each of the elements are discussed in detail, the whole being illustrated by experiments. While taking this course the student spends two hours each day in the chemical laboratory, repeating the experiments shown in the class-room, and making others which may be suggested, thus familiarizing him with the various forms of compounds, the marked distinctions between the different classes of salts, the use of chemical nomenclature, and the manipulation of apparatus. Practice in the use of the blow-pipe accompanies this work, and an insight into determinative mineralogy is thus acquired. The use and application of the spectroscope are also taught. The students in the laboratory at the end of the first term, are examined in the text-book and by analysis of *unknown bodies* in the dry way.

In the second term of the Senior year, the Inorganic Chemistry is finished and Organic Chemistry is taken up. The laboratory work continues throughout the term, and the student takes up the tests for the bases and their separation; also the tests for the acids and their separation. The students are examined at the close of the second term by means of unknown bodies, composed of mixtures of the several groups of bases.

In the Agricultural Course, in the third term of the Senior year, the students listen to a course of lectures upon Agricultural Chemistry, in which are discussed

such subjects as the following: Relation of Chemistry to Agriculture, the literature of Agricultural Chemistry, elements of plant growth, their relative abundance and importance, the atmosphere, the soil, fertilizers, etc. Storer's *Agriculture*, Johnson's "*How Crops Grow*," and "*How Crops Feed*" are used as reference books. Laboratory work accompanies the lectures and work in the text-books. The study of quantitative analysis begins in the gravimetric way, and, after some little practice, students will be directed in any line of special work they may desire.

Keeping in mind the object for which the College is founded, we have so planned our Chemical Course as to prepare the student for the general application of Chemistry to the industrial arts, while seeking thoroughly to ground him in the application of science to agriculture. A chemical laboratory, fitted up with modern appliances, balance-room, foul-gas room, and desks for thirty-six students, is ready for the classes.

Students have access to the following current chemical literature: *Chemical News*, *Analyst*, *Journal of the Chemical Society*, *Journal fur Landwirthschaft*, *Journal of Analytic Chemistry*, and "Fresenius Zeitschrift fur Analyt. Chemie."

Geology—Recognizing the fact that a knowledge of Geology is one of the foundations of agricultural science, the subject receives corresponding attention. In the second term of the Junior year, Elementary Geology and Economic Geology are taught, Tarr's Elementary Geology, and Tarr's Economic Geology of the United States being used. In the third term of the same year Systematic Geology is taught from Dana's *New Text-Book of Geology* and by means of lectures. Frequent visits to the mountains and quarries illustrate the practical application of dip, strike, fault, etc. At the close of the work, the students are required to identify and describe twenty-five rocks or mineral specimens.

CIVIL AND IRRIGATION ENGINEERING.

General Statement—In the last two years of the College course, special training is given, to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurement and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The department has a good collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for steam gauging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Cement Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile, and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India, and Australia. In the present condition of Irrigation Enginering these collections are especially useful.

Irrigation Engineering—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in the midst of one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

The Materials of Engineering—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron, and steel. Exercises with testing-machine familiarize students with the peculiarities of these materials.

Surveying—The principles of Land Surveying are taught in the last term of the Sophomore year. While instruction therein is given to the students in all courses, it is intended to cover the ground with sufficient thoroughness that the students in the Civil Engineering Course will not need to traverse any of the same ground again. The course includes a study of the operations of surveying; the adjustments of the instruments used by the surveyor; surveying with picket, chain, and compass; and leveling. Considerable attention is given to the methods of the Government Surveys, the finding of corners, and platting. Field work is required of each student for six weeks, two hours daily, in which exercises are given in chaining, measurement of angles with the chain and with the compass, compass surveying, and leveling. Attempt is made to teach the student to be careful and accurate, and to give him the confidence that comes with correct work. The student is required to check his work, and the exercises are so planned that many exercises check the results of others. When possible, a short time is given to a discussion of the measurement of water and the hydraulic laws relating thereto—knowledge useful to every citizen of an irrigated country and expected of every surveyor. A more extended training in this line is given in the later years of the course.

Reservoirs and Dams—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability are taught; also, the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

Agricultural Hydraulics—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable; principles of irrigation; laying out of grounds or farms for irrigation; and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural Courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

Trusses and Bridges—The instruction covers the methods of computing the stresses in bridge and roof trusses; the principles involved in the construction of trusses; and their erection, designing, etc. Merriman's *Trusses and Bridges* is used as a text-book.

Meteorology—A six weeks' course of lectures is given in the Fall term. This course includes a discussion of the means of taking observations; methods of exposure of instruments and precautions for taking correct observations; the characteristics of climate; especially the features of the climate of Colorado; barometry and thermometry; influence of the various meteorological elements upon agriculture and plant growth; influence upon health; the study of storm movements from the daily weather charts and telegrams; the laws of storms; characteristics and causes of special storms, as chinooks, northers, hailstorms, tornadoes, and cloudbursts. The College and the Meteorological Section of the Experiment Station possess a complete line of meteorological instruments which are in constant use. These include self-recording thermometers, barometers, rain gauges, sunshine recorders, psychrometers, anemometers, etc. The records from these instruments—together with the results of the meteorological investigations at the College for the time since the Experiment Station was established—and the daily charts of the Weather bureau furnish material for illustration and study in connection with the course.

Physics—Instruction in Physics is given for three terms of the Sophomore and Junior years, the course lasting one complete college year. Laboratory work is carried on two hours daily for one-half of each term. The important sciences of Mechanics, Light, Heat, Sound, and Electricity are studied. Special attention is given to the latter subject, both in the class-room and in the laboratory, in view of its increasing important applications, and as a basis for Electrical Engineering. In the course in laboratory work, the student deals personally with the apparatus described in the text-book, performs experiments for himself, and carries on determinations of the physical constants, or experiments in such ways as will give training and knowledge and greater familiarity with the subjects studied.

The following is a selection from some of the laboratory exercises of the past year:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing of the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle-power of sources of light.

Determination of focal strength of lenses and mirrors.

MECHANICAL ENGINEERING.

General Statement—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines, and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops, and experimental laboratory. The studies of this course which are in common with other courses are enumerated and described elsewhere in this catalogue; the others are:

Drawing.

Carpentry and joinery; also wood-working machinery.

Pattern making and foundry work.

Forge work.

Machine and vise work in metals.

Principles of mechanism.

Strength of materials.
Boilers.
The steam engine.
Machine design, machinery, and mill work.

Drawing—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

Carpentry and Joinery—The class-room work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

Pattern-making and Foundry Work are similarly taught. The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, and, in connection, instruction in core-making and the management of the cupola and brass furnace.

Forge Work, etc., is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening, and annealing.

Machine Work and Vise Work are taught in a similarly thorough and careful manner.

Principles of Mechanism are studied with reference to the combinations of which machines are composed; and the study of designs for the communication of motion by means of gears, belts, links, etc., forms an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. Most of these models were acquired by gift from the makers, or by purchase. In many cases they were constructed by the students from their own designs.

Strength of Materials is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns, and other structural pieces, tests are made of chains, ropes, cables, solid bars, and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws; and strength of bricks, stones, marble, etc.

Machine Design is taken up for one term, and the students make designs for various machines and appliances.

Boilers—The various forms are carefully studied from the best authors.

The College possesses four steam boilers to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples obtained from different sources of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings; and a large collection of parts of boilers showing conditions incident to boiler management.

A new calorimeter has recently been constructed by the students which, together with the new and accurate thermometers, adds greatly to the facilities for the study of boilers and boiler tests.

The Steam Engine is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests.

There are four steam engines at the College, three of which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These with what has already been named form a desirable equipment for the use of the students.

One twelve-horse power steam engine is set for a Prony brake. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

Machinery and Mill Work receive attention and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied.

The care and management of shops and the making of estimates are also considered; shop building and appliances receive careful attention.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

COURSE OF LABOR.

Bench work in wood	13 weeks
Wood-turning	12 weeks
Pattern-making	12 weeks
Moulding and casting	12 weeks
Iron and steel forging	13 weeks
Machine work in metals	12 weeks
Vise work in metals	12 weeks

BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First—The use of planes in joining, smoothing, and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle.

Students usually work from drawings. Cases, benches, boxes, foundry flasks, and a variety of other useful articles are made.

Machine Work in Wood—In connection with this course, with the use of tools, will be given the most rapid and economical method of selecting and preparing the wood for the machine. There will be given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools; and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells, and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

Pattern-making and Foundry Work—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft, and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There will be given

examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where molds and cores are made, and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the molds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass, and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes, and other things needed.

Forge Work—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer, and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers, and all bolts, braces, and such other iron and steel work as may be needed.

Machine Work in Metal—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping, and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work.

Practical Mechanics—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers, practically, the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of *how* a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by this training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

Tool-room System—There is a well-arranged tool-room, fitted-up with a check system designed to accustom students to order and neatness and the names of the tools in use.

Theory and Practice—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the class-room is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

MATHEMATICS.

General Statement—The purpose of the instruction offered by this Department is two-fold: First, to give the student clear and exact ideas of magnitudes and their measurement, the principles underlying the methods used, and the general unity pervading the mathematical sciences, or such of them as he has time to become acquainted with; second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

Arithmetic is taught the students of the Preparatory class. The year's work is designed to give a thorough review of the principles underlying the fundamental operations, and to give skill in the application of these to the various problems of business arithmetic.

Algebra is begun in the Sub-Freshman year. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposed in character, and of the conciseness obtained by the use of literal notation; and to give him sufficient skill in the fundamental operations of Algebra to enable him to solve intelligently simple equations involving one unknown number. Subsequent work acquaints him with the solution of simple equations of several unknown numbers, with involution, evolution, radicals, quadratic equations, and as much more as may be possible in the time allowed to the subject.

Geometry is taken up as soon as the student is sufficiently acquainted with algebraic methods to apply them intelligently to the computations of this subject.

In the first of the three terms allotted to the study the student is given a thorough practical acquaintance with the construction of geometrical figures and led to discover for himself as many as possible of the properties of the figures he deals with. To this end he is compelled to use exact methods of construction and to make exact measurements on his figures. Having thus gained an extensive practical acquaintance with the subject, he next takes up formal proof by the syllogistic method and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience and is given thorough practice in the mensuration of geometric magnitudes. So far as the time and ability of the student will permit, he is practiced upon original exercises.

Trigonometry is taught in the second term of the Sophomore year. In the time allotted to this branch, the student is given clear ideas of the trigonometrical concepts, shown their connection, and given considerable practice in the practical application of this branch of Mathematics.

Descriptive Geometry—From the wide application of Mathematics in all branches of Engineering, those students electing either of the courses having to do with Engineering, pursue the study of Mathematics throughout the entire course, with the exception of the last two terms of the Senior year.

Descriptive Geometry is taught to those students electing the two courses in Engineering. The second and third terms of the Sophomore year are devoted to this subject. The principles of parallel and central projection, of development, etc., are discussed and illustrated in the solution of a great variety of problems, and many of these are accurately worked out on the draughting-board by each student.

Higher Algebra—The first term of the Junior year is devoted to a brief review of quadratics and radicals, and to the study of the principal algebraic methods usually denoted by the name Higher Algebra. Among the subjects considered are, Series of various sorts; Mathematical Induction and some of its applications, such as the demonstration of the Binomial Formula; the Theory of Equations; and various methods of solution of equations of the third and higher degrees.

Analytic Geometry—The second term of the Junior year is devoted to the study of Analytic Geometry. The student is made acquainted with the method of coördinates, and the connection between algebraic and geometric forms. The fundamental properties of the conic sections are developed, and as much more of the subject as the time permits.

Calculus—The last term of the Junior and the first term of the Senior years are devoted to the study of Differential and Integral Calculus. Taylor's *Elements of Calculus* is used as a text-book, and the study is pursued substantially as the subject is there developed. The notion of limits is, however, made the logical basis upon which the subject is developed.

The department is provided with a set of Schroeder models from Darmstadt, for purposes of illustration in the study of Solid Geometry, and with models of warped surfaces, etc. The collection is being added to from time to time. There is a collection of drawings for use in the study of curves and curve-tracing.

HISTORY, LITERATURE, AND GERMAN.

A well-rounded education includes a somewhat thorough knowledge of History and English Literature. These subjects are studied throughout the entire course. United States History is a part of the work of each term of the Preparatory year. Two terms of the same year require some work in English and American Classics. The study of the history of the United States is aided by maps illustrating the periods of maritime discovery, the colonization of the New World, territorial acquisitions, etc.

The course in General History and English Literature is as follows:

SUB-FRESHMAN YEAR.

Second and Third terms—American Literature.

FRESHMAN YEAR.

First term—Ancient History: Greece and Rome.

Second term—Europe from the Invasion of the Northern Barbarians to the present time.

SOPHOMORE YEAR.

First term—English Literature. Readings from Chaucer, Spenser, Shakespeare, Elizabethan prose writers, Milton, Bunyan, Dryden, and later writers.

JUNIOR YEAR.

Third term—Recent History of America, A., L.

SENIOR YEAR.

First term—English Literature, L.

Second term—Philosophy of History, L.

Third term—Recent History, A., M., C., L.

Afternoons: Readings in History four hours per week in Library.

Sheldon's *General History* is used as a text-book. The student is taught to reason about historical events and is required to consult books of reference.

Kellogg's *English Literature* is the basis for the study of English Literature. Each historic period and the authors of that period are considered together. Class work also includes lectures.

Members of the Ladies' Course engage in a more extended study in English and American Literature.

Each member of the class reads masterpieces from the greatest English writers, makes comparison between them, and studies style with as much care and thoroughness as possible.

The development of literary taste is the aim of this work. The study of the Philosophy of History includes such subjects as, historical investigations; laws governing human actions; reciprocal influences of religion, literature, and government; comparisons and criticisms of past civilizations; and the elements found in our present European civilization.

A valuable collection of photographs belongs to this Department and illustrates the architecture of the past and present from ruins, and buildings now in existence.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European History since the Christian Era, and also include seven maps for the study of Ancient History, and excellent maps for studying United States History.

The College Library is an important factor. Its shelves are well filled with standard literature, and with works of special interest and assistance to the student of history.

German—Opportunities for the study of German will be furnished by this Department. Such work will be elementary or more advanced according to the abilities and needs of students.

ENGLISH AND PHILOSOPHY.

General Statement—The ability to write a clear and an elegant English sentence is an accomplishment much to be desired; and it is upon this one accomplishment that every well-rounded course relies. The aim of the following courses in Rhetoric and English Composition is in general twofold: (1) To train the student in the theory and the practice of English Composition; (2) by the study of the fundamental principles of style to aid him in the intelligent appreciation of literature.

In all the work of the Department of English and Philosophy, the College Library serves as an important and a necessary factor. Although the Library is well supplied with dictionaries, it is regarded as essential for the student to possess a good English dictionary. For this purpose Webster's *Academic Dictionary* is recommended.

Rhetoric and English Composition—The class-room work is divided equally between theory and practice. For this purpose, Lockwood's *Lessons in English* is used as a text-book. Short themes are written every week, criticised by the instructor, and discussed before the class or in consultation with the student. This course extends throughout the Sub-Freshman year.

Rhetoric and Rhetorical Analysis—This course follows the *Rhetoric and English Composition* of the Sub-Freshman year, which is a prerequisite. The text-books used as guides are Genung's *Practical Rhetoric* and the same author's *Handbook of Rhetorical Analysis.* Fortnightly themes of some length are required. During the Winter term's work, topics for the themes are assigned by the instructor; the six themes of the Spring term form a connected paper upon some topic selected by the student. The work is continued throughout the Winter and Spring terms of the Freshman year.

Public Exercises—Each student, above the Freshman year, is required to participate in one public exercise (recitation, declamation, essay, oration, debate, etc.) each term of his college course.

Psychology—The work in psychology is carried on with text-book and recitations and aims to familiarize students with the fundamental psychological principles. Halleck's *Psychology and Psychic Culture* is made the basis of the work. Supplementary reading along the lines of recent investigations is encouraged. This course is given the Spring term of the Sophomore year.

Ethics—the work in ethics bases itself upon the psychological ideas acquired in the previous course, and applies them to the analysis of character, habit, desires, and ideals from an ethical point of view. Mackenzie's *Manual of Ethics* (third edition) is used as a text-book. This course is given the Fall term of the Senior year.

Sociology—This course is designed to afford a synthetic view of social phenomena and to suggest a preliminary way of looking at society. Small and Vincent's

Introduction to the Study of Society is used as a text, and the method is illustrative throughout. This course is given the Winter and Spring terms of the Senior year.

Latin—Classes in this language are organized at the opening of each college year. All work in Latin is elective. Such work, if satisfactorily done, may be accepted, under Faculty regulation, as a substitute for such regularly scheduled work as may not be regarded as an *essential* part of the specific course upon which the student has entered. The Roman method of pronunciation is in use, and, at present, Bennett's *Latin Grammar* is the basis of instruction.

DOMESTIC SCIENCE.

The work outlined for the Department of Domestic Science covers the preparation which the proper care of the home requires. There are three terms of text-book work, two terms of lectures, and nine terms of practical exercises.

Home Hygiene—This subject is taken up at the beginning of the second term of the Sophomore year. The text-book used is *Public Health*, a series of prize essays relating to health in the home, healthy foods, school sanitation, disinfection, prevention of disease, etc.

Household Science—Lectures on *Household Science* are given to the ladies of the Sophomore class in the third term of the college year.

Chemistry of Cooking—In the first term of the Junior year the subject considered is the *Chemistry of Cooking*. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The subject, in many of its phases, is considered in the first term of the Junior year. The second term of this year, Atkinson's *Science of Nutrition* is used as a basis for class exercise and lecture work. The bulletins of the United States Department of Agriculture are helpful in this work.

The Sick Room—The work of the third term, Junior year, includes lectures on nursing, emergencies, etc.

Sewing—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery, and millinery. Special attention is given to dressmaking.

The Kitchen—The work in the kitchen laboratory includes the study of foods with practice in all kinds of cooking and laundering.

General Topics—A lecture is given each Friday afternoon on some topic relating to the care of the house, clothing, and person; social duties; customs of good society; and anything that will aid in the development of a perfect womanhood.

POLITICAL ECONOMY AND LOGIC.

Political Economy—The text-book used is Walker's *Political Economy.* Other works of the author, and the writings of the best authorities on economic questions, are within reach of students who visit the Library.

The important questions with which the subject deals are treated without attempt to uphold any narrow, one-sided view. Economic questions of particular importance to the people of the United States are given special prominence in the recitations, discussions, and lectures. These are considered from a historic and an impartial standpoint.

Logic—This study is taught by recitations, discussions, and original exercises. Careful consideration is given to the principles of deductive reasoning. The syllogism is analyzed. The principles and methods underlying scientific investigation are made subjects of study, and the basis of class discussion and essay work. Practical application of what the student learns in the study of Logic is made in testing the validity of arguments and detecting fallacious reasoning.

The history of the science is considered and something learned of the writers whose works thereon have recognized merit. Gregory's *Practical Logic* is the textbook used.

Civil Government—The study of the Constitution of the United States is an important preparation for the duties of citizenship. The subject, as one of the studies of the Senior class, includes some consideration of the political history of the United States. The Constitution of the State of Colorado and the organization of the departments of government in conformity with its provisions are considered in special lectures.

MILITARY SCIENCE.

For instruction in Military Science, the students are formed into companies, and the companies into an Infantry Battalion, properly officered, including a Field Band and Signal Detachment—the whole under the command of an officer of the Regular Army detailed by the War Department.

The system of instruction, being that in use in the Regular Army, is calculated to form the habit of prompt obedience, foster the natural martial instinct, and prepare the student, should necessity arise, to organize a company or battalion of our National Militia.

The infantry drill includes the schools of the soldier, company, and battalion, in close and extended order, advance guard, rear guard, and outpost duty, and such other exercises as time permits.

Artillery instruction is given in the school of the cannoneer, dismounted, as prescribed in the U. S. Army Light Artillery Drill Regulations.

Instruction in Military Signaling, for the rapid transmission of intelligence, is given to a detachment specially chosen for this purpose. The Meyer Code (used by both the Army and Navy) is taught. Messages are sent, in ordinary and in cipher, using either flag or heliograph.

A Field Band of trumpeters, drummers, and fifers is organized from the student body. Whenever practicable, instruction in martial music will be given by a musician detailed for this purpose from some band of the Army.

The Department is equipped with 250 cadet rifles of the same pattern as used at the United States Military Academy, together with the necessary outfit of belts, cartridge-boxes, etc.; two 3-inch rifled field pieces; several flags; and two heliographs (made by the Department of Mechanical Engineering after a model furnished by the War Department), for signaling; the necessary musical instruments for the Field Band; and 12 swords and belts for the use of officers and non-commissioned staff officers of the Battalion.

The practical work, as outlined above, is supplemented by lectures delivered, during unfavorable weather for out door work, by the Professor in charge.

Military drill is required of every male student, unless excused by special vote of the Faculty, for physical disability or other satisfactory reason. Each cadet is required to purchase a copy of the U. S. Infantry Drill Regulations for study and reference. Every male student, whether excused from drill, or otherwise, must provide himself with the College uniform, consisting of blouse, pantaloons, cap, and gloves, and must keep the same in good condition. This uniform is neat, durable, and serviceable, and costs, all told, about thirteen dollars. Students are required to be uniformed properly at drill, and at all recitations and exercises during the forenoon.

New students, and students without uniforms, will, on reporting to the Professor of Military Science, be measured by a tailor, and their uniforms immediately ordered. A deposit is required with each suit.

Inspections are held at the end of each month, when the arms, accoutrements, and appearance of each cadet are scrutinized. Each cadet has assigned to him his individual equipment, and must maintain it in good order. He is held responsible, likewise, for unnecessary losses or damages. The period from 11:20 A. M. to 12 M. is allotted, daily, to this Department.

MILITARY ORGANIZATION.

WILLIAM C. DAVIS, FIRST LIEUT. 5TH ARTILLERY, U. S. A.,
Professor of Military Science and Tactics, Commandant.

BATTALION STAFF:

MELVIN D. WILLIAMS, *First Lieut. and Adjutant.*
BERNARD J. PRENDERGAST, *First Lieut. and Quartermaster.*
CARL S. BUNGARDT, *Sergeant Major.*
EMIL AFFOLTER, *Quartermaster Sergeant.*
WALTER P. HURLEY, *Chief Trumpeter.*

COMPANY A.

Thomas J. Warren,
Captain.

Ray C. Calloway,
Herbert C. Matthews,
Lieutenants.

Harry C. Miller,
First Sergeant.

Clifford S. Atherly,
Ray J. Baker,
Fred W. Stover,
James A. Stump,
Sergeants.

Charles L. Arnell,
Philip H. Boothroyd,
Lee R. Cooke,
Leroy A. Baker,
Raymond R. Fisk,
Corporals.

COMPANY B.

Fred S. Hotchkiss,
Captain.

William A. Dickens,
Amos Jones,
Lieutenants.

Charles S. Newell,
First Sergeant.

Charles D. Strever,
Charles W. Mayers,
Harry A. Boyd,
Charles B. Preston,
Sergeants.

Jacob E. Horner,
Henry F. Sturdevant,
Mark T. Harned,
William R. Headden,
Estes P. Taylor,
Corporals.

COMPANY C.

Herman O. Brown,
Captain.

Charles E. Swann,
Jesse W. Goodwin,
Lieutenants.

Frank Corbin,
First Sergeant.

Aaron V. Benson,
Ralph J. Stephenson,
William J. Littleton,
Lewis C. Hall,
Sergeants.

Thorwald V. Norgaard,
Edward S. G. Titus,
David Severance,
Dudley Golding-Dwyre,
Minot J. Giddings.
Corporals.

COMMERCIAL COURSE.

By action of The State Board of Agriculture, taken in December, 1895, the College Faculty was instructed so to arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of The State Agricultural College."

The aim of the course is to meet the wants of those who are seeking a high-grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to fit students for bookkeepers and stenographers in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest order in accounting and general reporting. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well-trained and educated are sought and liberally paid for their services.

The students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the college associations of all kinds, and all the elaborately equipped laboratories are open to the students of the department and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

THOROUGHNESS.

One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions, and promotion. Business men are willing, and will always be willing, to pay well for competent bookkeepers and stenographers. The successful bookkeeper and stenographer must be an expert. Thorough training is absolutely necessary. The students' work is examined critically and is not credited unless it is up to the required standard.

BOOKKEEPING.

The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry. After showing by his work and examinations that he has a clear understanding of what must be learned, the student is promoted to advanced bookkeeping in which he learns to keep books in various lines of business with special and labor-saving books; and from which he enters the actual business practice, is assigned his official desk as a business man, is furnished with a cash capital and merchandise stocks, according to the business in which he is to engage. He receives his blank forms of all kinds of business and commercial paper and then begins business operations. He buys and sells merchandise, makes regular deposits at College National Bank, gives and receives checks, carries on correspondence with different individuals and firms, and finally balances his books daily. The office department is supplied with large books which are kept by the students. The Sadler-Rowe *Budget System* is used as the text in theoretical bookkeeping.

STENOGRAPHY AND TYPEWRITING.

Stenography is taught in a practical and systematic manner. The elements and principles are thoroughly mastered after which carefully-graded practice exercises and easy dictation are given. Students are required to read back their stenographic notes and transcribe the same on the typewriter. Students are afforded opportunities for actual work in the business practice of the office department where a variety of business correspondence is carried on. There are, also, opportunities for reporting.

Typewriting instruction is given throughout the year. Students are taught the mechanism and the uses of the various parts of typewriters. Finger exercises are given for the acquiring of the proper touch and method of manipulating the keyboard. Proper instruction is given how to take care of machines and how to remedy and adjust any derangements. Instruction is given in setting up matter on the typewriter, the correct forms of correspondence, statements of accounts, writing of contracts, legal papers, tabulating work, etc., etc. The Department is supplied with fifteen of the leading standard typewriters. Manifolding, the use of the mimeograph, and the letter-press receive careful attention.

The latest and most approved methods are used in bookkeeping, stenography, typewriting, and penmanship.

EXPENSES.

Tuition is free. All books and stationery for the two years' course need not cost to exceed $25. Board and lodging at from $3 to $4 per week; club board at reduced rates.

ADVANTAGES.

1. Free tuition. 2. Text-books and all stationery sold at cost. 3. Each class in charge of a specialist. 4. First-class office equipments for actual business. 5. The large library, museum, college associations, and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that can not be equalled by business colleges.

REQUIREMENTS FOR ADMISSION.

Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the courses for the Preparatory and Sub-Freshman classes. Those who are prepared for the work will receive advanced standing.

DIPLOMA AND CERTIFICATE.

Students who complete the two years' course and sustain the required examinations will receive a diploma.

Those who complete part of the course and pass the required examinations will receive a certificate of proficiency for the branches completed.

Students of this Department are subject to the rules and regulations of the College.

BRANCHES NOT ELSEWHERE NAMED.

Oratory—This has been defined as the "Art of influencing conduct with the truth sent home by all the resources of the living man."

The study of the Art of Expression is followed in some form throughout the College course. A healthful interest in the subject has been manifested by all the students.

Our public institutions, our form of popular government, great questions of moral and political moment, the almost boundless possibilities within the grasp of individual effort, all tend to increase and intensify the interest in, and to emphasize the importance of, this much-needed branch of education.

Few text-books are required in this branch, as copies of the best selections of English prose and verse are furnished the students. This gives a much broader range and scope to the study, and adds an interest to the work not otherwise attained.

"*The Classics*"—The State Agricultural College is not a *classical* school. Its operations are conducted in conformity with the provisions of the statutes of the United States, and the State of Colorado, elsewhere quoted. There is nothing in any law to prohibit instruction in the languages, ancient or modern, in what are termed "Land-grant Colleges." On the contrary, some work in foreign languages is clearly contemplated in the various acts relating to these educational institutions. There has been a demand for more linguistic work than is outlined in the different courses of study now pursued in the College. To meet this demand a competent instructor in Latin and Greek has been employed.

German—The best scientific and technical schools of the country make provision, more or less thorough, for some instruction in German. The students of such schools have great advantage in the prosecution of their work if the scientific and technical knowledge of German authors is accessible to them. Hereafter, the College will offer instruction in German to such students as elect to receive it. This instruction will be given by those who make use of the most approved method of teaching a foreign language.

Public Rhetoricals—Each student enrolled has at least one public rhetorical exercise each College term, unless excused by Faculty vote. These exercises consist of declamations and recitations for the lower classes and original exercises for the advanced students. The importance of these exercises to the student can scarcely be over-estimated, as every one should have a training which will enable him to present his views upon any question in public in an intelligent and pleasing manner.

THE LIBRARY.

The College Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. Now it contains 11,000 bound volumes besides many thousand pamphlets.

The Library is supported by appropriations made from the "College" and "Annie Jones" funds. The annual sum appropriated will average $1,000. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture; Irrigation, principally by English, French, and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoölogy and Entomology; Mechanics and Engineering; Political Economy; Domestic Science; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc., etc., etc.

Sixty-nine periodicals, monthly and weekly, are taken by subscription. The publishers of many Colorado newspapers place the College Library on their *free* mailing list.

The Library is well lighted and adequately furnished. Save the noon hour, students can now enter the Library rooms any week day between the hours of

7 A. M. and 5 P. M. On Sunday the Library is kept open from 1:30 to 4 P. M.

Books may be drawn for a period of two weeks. The library is catalogued according to the Dewey Decimal System, the author, title, and subject cards being arranged on the dictionary plan, in convenient cabinets, to which the students have free access.

COLLEGE ORGANIZATIONS.

LITERARY SOCIETIES.

There are three Literary Societies connected with the college—the "Philo-Æsthesian," the "Columbian," and the "Athenæum." Meetings are held weekly throughout the school-year. Students are admitted to these socities by vote of the members. The fees and dues are not burdensome.

"The Philo-Æsthesian Society" meets in the College Chapel. "The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech."

The Spring term organization was as follows: James A. Stump, President; Harry A. Boyd, Vice-President; Inez Smith, Secretary; Henry F. Sturdevant, Treasurer; Mattie N. Shoemaker, Critic; and Preston King, Marshal.

"The Columbian Literary Society" meets in Horticultural Hall. "This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge."

The Spring term organization was as follows: Emil Affolter, President; Fred S. Hotchkiss, Vice-President; Frances M. Warren, Secretary; Clifford S. Atherly, Treasurer; and Bernard J. Prendergast, Critic.

"The Athenæum Literary Society" meets in the lecture room in the Civil Engineering Building. Its purpose is, "to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law."

The Spring term organization was as follows: Frank L. Garnick, President; Ray J. Baker, Vice-President; Eunice Chatfield, Secretary; Elwood W. Easley, Treasurer; Oro McDermith, Sergeant-at-Arms; Thomas J. Warren, Critic; Charles B. Preston and Charles S. Newell, Program Committee; Roy B. True, Frederic M. Ferrel, and Robert E. Richardson, Membership Committee.

ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The officers at the close of the school-year were as follows: Fred S. Hotchkiss, President; Melvin D. Williams, Vice-President; Harry C. Miller, Secretary; Aaron V. Benson, Treasurer; and Ray C. Calloway, Superintendent of Manuscript.

The Association holds two contests each year; one for the members of the Sophomore and Freshman classes, the other for the members of the Senior and Junior classes.

The last Sophomore-Freshman contest took place in the College Chapel on the evening of February 18, 1898. There were five competitors. Herbert P. Galliher, of the Freshman class, won first place and the silver medal. Stuart B. Garbutt, of the Sophomore class, was given second rank. The subjects and speakers were as follows:

The Evils of Immigration	Herbert P. Galliher, 1901
I Serve	Robert C. Woods, 1901
Party Government	Mark T. Harned, 1900
The End of the Century	Ross D. Howard, 1901
The Evolution of Intelligence	Stuart B. Garbutt, 1900

The Senior-Junior contest followed on the evening of February 19. There were eight contestants. Herman

O. Brown, of the Senior class, was awarded first place and the gold medal. Thomas J. Warren, also of the Senior class, was given second rank. The following was the program of exercises:

Happiness	Bernard J. Prendergast, '98
The Immortality of the Republic	Addison L. Kellogg, '99
A Nation's Outcast	Emil Affolter, '98
John Ericsson	Herman O. Brown, '98
The Stimuli to Labor	Thomas J. Warren, '98
The Influence of Power	Marguerite Prendergast, '99
Education's Part in Man's Progress	William J. Littleton, '99
The Labor of Man	James A. Stump, '99

NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science; and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

The officers of the Club are L. D. Crain, President; Edward M. Traber, Secretary; Edward B. House, Treasurer; C. P. Gillette, Curator of Museum; Theodosia G. Ammons, Louis G. Carpenter, and Marguerite E. Stratton, Program Committee.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The purpose of the local organization is to promote growth in grace and Christian fellowship among its members. It urges aggressive Christian work particularly by and for students. Above all, it strives to point College students to a higher standard of moral excellence.

The officers in charge at the end of the college year were: Newton M. Fitch, President, and James Elliott, Secretary and Treasurer.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

"The object of the Y. W. C. A. is the development of a higher Christian character in its members, and the prosecution of active Christian work among the young women of the College. It seeks to surround the students with an earnest spiritual atmosphere; to minister to their intellectual, moral, and social well-being, and to promote growth in goodness, purity, and truth."

The officers are Laura Armstrong, President; Anna Bell Hawkins, Vice-President; Myrtle V. Larsen, Corresponding Secretary; Elizabeth M. Kelly, Recording Secretary; and Marguerite E. Stratton, Treasurer.

Misses Bessie C. Wood and Linnie M. Rutledge were delegates to the State Convention, and Misses Gertrude F. Kellogg and Mabel C. Blinn represented the Association at the State Chautauqua Summer School, at Palmer Lake, during the summer of 1897.

WASHINGTON'S BIRTHDAY.

Each year an organization of the students is formed for the purpose of properly celebrating Washington's Birthday. The last celebration was held in the College Chapel, Tuesday evening, February 22, 1898.

PROGRAM.

Address by the President of the Day	William A. Doty
Some Lessons from Washington's Life	Arthur G. Newell, 1902
Foreign Aid in the Revolution	Ralph W. Haynes, 1901
The Price of Liberty	Edwin W. Smith, Irregular
Gratitude	Frances M. Warren, 1900
True American Citizenship	Frank L. Garnick, Commercial
Our Flag	Charles B. Preston, 1899
The Father of the Revolution	Amos Jones, 1898
College Oration—Great Revolutionists	Fred. S. Hotchkiss

COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the college year. The columns of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official, and patron of the College.

The editorial staff is as follows: Melvin D. Williams, '98, Editor-in-Chief; Charles E. Swann, '98, Business Manager; Charles S. Newell, '99, Advertising Editor; William A. Doty, '98, Literary Editor; James A. Stump, '99, Local Editor; Frances M. Warren, 1900, Society Editor; and Herbert P. Galliher, 1901, Exchange Editor.

BUILDINGS AND EQUIPMENTS.

Main College Building—College Hall, with its new addition, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature, and German; Latin and Greek; Political Economy and Logic; and Zoölogy and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoölogical Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40×72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian;* special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

The New Chemical Laboratory—The need of a better building for the use of the Chemical Department has long been recognized. The building in which the chemical work of the College and Station was done is one of the oldest on the college grounds. It could not be put in proper shape to meet the present wants of the department.

The new laboratory building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professor's suite of rooms, including office, balance room, and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right, the stairway leads to an entrance on the second floor. Here are the assistant's quarters—office; experiment station laboratory, with balance room and hoods; storage room; and nitrogen room containing two hoods.

Directly in front of the main entrance to the loggia, is the qualitative laboratory, 30×38 feet, supplied with working desks large enough to accommodate thirty-two students. This room is provided with nine hoods, storage room, and balance room. This room being an inside room, is lighted by a large skylight in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory, and behind the professor's rooms, is the quantitative laboratory arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods, and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, doors, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk and supplied with a rubber plug. This waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft accelerated by hot-water coils placed in large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26×46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

Horticultural Hall—The New Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52×64 feet. It is basement, two stories, and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work, and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture-room, office, assistant's office, herbarium, and other small rooms for experimental work. The second floor is arranged for a large museum with octagon ceiling; also private laboratories as well as plant, seed, and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

Greenhouses and Forcing-house—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25×50 feet and consists of a wrought-iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides, and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20×50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory which is 14×14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

Orchards and Grounds—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds, and cold-frames.

Agricultural Hall—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for class-room work. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, laboratory, agricultural museum, and seed-room. The basement has four apartments which are used for heating apparatus and storage.

Farm and Stock—The Farm contains 240 acres, nearly all under cultivation.

The live stock consists of Clydesdale grade draft horses, Short-Horn and Jersey cattle, Shropshire sheep, and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will admit.

Mechanical Engineering Building—This building includes two large main portions, two stories high, and an ell one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge, and adjoining it is the tool room supplied with a good assortment of small tools such as taps, dies, drills, reamers, gauges, and milling machine cutters. Here is kept the supply of nails, screws, belting, etc.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, one 17-inch engine lathe, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, and a universal tool and cutter grinder. An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting:

The testing laboratory is also in this room. It is supplied with a 50,000-pound testing machine, Prony brake, steam pumps, gauges, thermometers, etc.

At the west end of this story is a well-lighted class-room used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are sixty benches each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, and eight wood-turning lathes.

In the lower story of the east main portion of the building is the engine room containing the 50-horse power Corliss engine which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gauge tester affords a means of correcting steam gauges.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room which occupies the upper part of this building has accommodations for fifty students. In the ell portion of the building are found the coal house, blacksmith shop, and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are 25 forges all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears. The store closets for iron and steel are in this room.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks, and skimmers. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

Civil and Irrigation Engineering—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main class-room is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A second room on the same floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the Section in the Experiment Station.

There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories, one-half of the area being used for each. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor, to lessen injurious vibration, is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000, for testing the flow of water through orifices and over weirs. Here also is placed the Pelton water motor and the cement-testing instrument, together with some other portions of the equipment, pipes, pressure-gauges, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gauges; gyroscope; air-pump and accessories; thermometers; mirrors and lenses; projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000-ohm resistance coil; astatic, sine, tangent, and d'Arsonval galvanometer; Edelmann ohmmeter; quadrant; electrometer; voltmeters; telephones; standard cells; and much minor equipment.

For use in Engineering and Hydraulics, it has Colorado, Lallie and Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube; registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gauges; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water-motor, presented to the Department by the Pelton Water Wheel Co., a water-meter, presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments, it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and a Buff and Berger transits; five levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement-tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing-machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

Military Science and Tactics—This department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice, and artillery firing.

Domestic Science—The Department of Domestic Science has eligible and serviceable quarters in the building formerly occupied by the Department of Botany and Horticulture. The accommodations and appliances are ample for class-room and laboratory work in everything connected with household management.

Scientific and Technical Apparatus—All departments of science have elaborate, modern, and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy, and entomology is done with the aid of apparatus representing a cost of $23,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over $21,000.

Value of College Property—The property of The State Agricultural College is carefully inventoried in December of each year. The total valuation for each of seven years is given:

1891	$144,568.98
1892	176,600.26
1893	187,847.53
1894	197,633.76
1895	207,411.83
1896	212,699.52
1897	232,667.62

The sums named do not represent any portion of the Experiment Station property which, in December, 1897, was inventoried at $25,643.54.

GENERAL INFORMATION.

Registration—All persons coming to Fort Collins for the purpose of entering the College are required to register at once. Students are registered once each college-year and are classified at the beginning of each of the three terms into which the college-year is divided. Any person registered as a student comes under the provisions of the rule relating to "*Leaving College*" for the whole college-year in which such registration occurs.

Admission—The College admits students of both sexes, provided they pass the required examination or, in lieu thereof, present satisfactory certificates of proficiency given by city and county school superintendents or others competent to sign such evidences of scholarship; and provided they are *at least fifteen years of age.*

The work of the Preparatory year is, in part, a review of the common-school branches. In this year attention is given to American and English prose and verse, Drawing, Elocution, Word Analysis, and Composition.

No one will be admitted to this class who has not completed the work of the seventh-year grade of the public schools. The College management does not seek students for this class; it is made a part of the College course for the reason that there are persons, having limited educational advantages at home, who can enter upon its work with profit to themselves and to the detriment of no one else. The requirements for admission to the Sub-Freshman class are those usually required for entrance to the best high schools. In no instance will this standard be lowered. Candidates for Freshman class standing must show a scholarship fully equivalent to that of one well-fitted to enter upon the work of the tenth-year grade of the public school or the second-year grade of a good high school.

Candidates for advanced classes or work must be examined on all previous work, or bring certificates of standing from schools having an equivalent grade of work.

Candidates for admission should appear for examination on the date announced in the calendar of exercises, preferably at the opening of the College year. Those entering later, or proposing to take advanced work, must be prepared to take a more thorough and prolonged series of examinations.

Regular and Special Courses—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well-qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular courses.

Grades—Each student is expected to maintain a grade of 65, on a scale of 100 as perfect. A student is graded as passed in any study, or branch of manual practice, when the average of his daily progress and his term examination equals 65, on a scale of 100 as perfect.

Failure may be made up, and tested by special examination, or the study may be again taken up with a subsequent class.

Discipline—The discipline of the College is administered by the Faculty according to a system of demerits.

Misconduct, in or out of classes, unexcused absences from any required College exercises, meddling with College property, etc., receive one or more demerits, as the case may seem to require. Parents of students who receive ten demerits will be notified of the students' misconduct by the President; twelve demerits suspend, while fifteen expel the student from the College.

Leaving College—A student will not be allowed to absent himself from his classes or any scheduled work, or to leave College in term time, without permission of the President of the Faculty; otherwise the student will be liable to *suspension or expulsion*. Temporary leave of absence can be granted by the President, or the officer in charge during his absence. Final separation from the College must be acted upon by the Faculty.

Labor—Labor, two hours each school day, is required of all students not excused for physical disability. This labor (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

Degrees—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

The degree of Master of Science will be conferred upon all graduates of the College who pursue thoroughly, some line of work after graduation, and who submit an acceptable thesis.

The degrees of Civil Engineer and Mechanical Engineer will be conferred upon post-graduate students and others who, by reason of satisfactory work, are entitled to receive them.

Students who complete the work of the Commercial Course will receive a Diploma.

Expenses—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND

SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

A boarding club, the membership being about forty, is organized and managed by male students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. The yearly expenses of one of these club students may be summarized as follows:

Club board, 40 weeks, at $2.25 per week	$ 90.00
Room rent, 40 weeks, at .75 per week	30.00
Laundry, 40 weeks, at .50 per week	20.00
Cadet uniform	12.00
Books and stationery	8.00
Incidentals	10.00
Total	$170.00

Students of either sex can secure lodging and board in private families at from $3.50 to $4 per week.

Many students who "*bach*" bring their yearly expenses at College within $125. Other students bring a small edition of home life with them. Brothers and sisters rent a small cottage and begin housekeeping on a modest scale, and with an equitable division of labor. It is rare in such cases that the monthly expense to each member of the little household exceeds $8.

There are numerous ways by which students of either sex may materially lessen their College expenses. An industrious girl, one who really means business, can find desirable quarters in some good home and make her house service render her the price of her board and lodging. There is work for a young man—work which will bring him the wherewith to meet a not inconsiderable part of his necessary expenses—if he is willing to wear a laborer's clothes and soil his hands in doing something useful.

The College is an employer of student labor to a limited extent. In the year just closed our students received nearly $700 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Students are counseled to a provident use of their money. There are those who spend money thoughtlessly and uselessly, but their number is not considerable. The surroundings of the College are such as favor the practice of economy. The pleasures in which most students indulge are simple, harmless, and inexpensive. The student's expense account is not forced beyond proper limits by reason of customs in vogue among his fellow-students or by attractions of questionable repute brought within reach of his College life.

State Experiment Stations—The Central Station is located at the College, Fort Collins, Larimer County, Colorado. Four Sub-Stations are provided for, two of which are in operation. They are the Arkansas Valley Station, at Rocky Ford, Otero County; and the Rain-Belt Station, at Cheyenne Wells, Cheyenne County. The Divide Station, at Monument, El Paso County, and the San Luis Valley Station, at Monte Vista, Rio Grande County, have been discontinued temporarily.

This department was created in acceptance of the conditions of the "Hatch Act," and the work has been arranged in conformity with its provisions.

Bulletins are issued quarterly, or oftener, and reports annually. The former are distributed to those who request them as long as the editions last.

LOCATION AND HISTORY.

Location—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer county, which is one of the most prosperous agricultural counties in the State. The town contains 3,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of the Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light; and its sidewalks are exclusively made of excellent flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Union Pacific, Denver, and Gulf Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by three trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights, and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

History—The origin of the State Agricultural College of Colorado, like that of its sister institutions in other States, dates back to an act of Congress, passed July, 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, "*a college where the leading object shall be, without excluding other scientific and classical studies, and including mili-*

tary tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The Legislature, in addition to providing for the support of the College by the mill tax, before named, has made the following named special appropriations:

Year.	Amount.	For What Purpose.
1881	$ 5,000	College Dormitory
1883	10,000	Mechanical Engineering Building
1889	18,000	Extension of Main Building
1893	6,500	Sewer System
1895	10,000	Additions to Buildings

The State Experiment Stations are intimately connected with the College, and are under the control of its governing board. The stations, four in number, owe their existence to the acceptance, by the State, of the provisions of the Congressional Act, better known as the "Hatch Act," of 1888. The College receives $15,000 a year from the Treasury of the United States for the performance of the experimental work required of the stations.

The College also receives support from the General Government under the provisions of an Act of Congress, passed August 30, 1890, known as the "Morrill Bill." The first annual payment from this source was $15,000. The act provides that this sum shall be increased $1,000 yearly until it reaches $25,000, when it shall become permanent.

The probable annual revenue of the College, for the fiscal year ending November 30, 1898, and the sources whence it will be derived are herewith shown:

1. Land Income Fund, derived from interest on money received from sales of land donated by the General Government, and rents of leased lands not yet sold, about $4,000.

2. "Hatch Act," support of the United States Experiment Stations, $15,000.*

3. United States Fund, "Morrill Bill," $24,000. (This will ultimately reach $25,000 per annum.)

4. Special Fund, derived from sale of stock, farm products, and the like (estimate based upon the average for a number of years)—$1,000.

5. State Tax Fund, one-fifth of a mill on all the taxable property of the State, about $38,000.

Yearly receipts from all sources, given approximately, $82,000.

Prior to 1887, but one course of study was pursued by students. The following-named courses, from which students can make choice, all lead to the degree of Bachelor of Science, save the last named: Agricultural Course, Mechanical Engineering Course, Civil and Irrigation Engineering Course, Ladies' Course, and Commercial Course.

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*No part of this fund is available for College support. It must be used exclusively for meeting expenses connected with the prosecution of experimental work connected with the stations.

The enrollment of students and the number of graduates for each year since the opening of the College, are as follows:

Years.	Males.	Females.	Total.	Graduates.
1880	14	11	25	0
1881	35	22	57	0
1882	49	32	81	0
1883	50	31	81	0
1884	40	37	77	3
1885	50	46	96	6
1886	45	42	87	1
1887	63	42	105	4
1888	71	38	109	4
1889	73	34	107	2
1890	56	18	74	9
1891	77	29	106	3
1892	101	45	146	7
1893	135	44	179	7
1894	142	56	198	7
1895	164	66	230	13
1896	161	71	232	12
1897	223	112	335	12
1898	245	99	344	13

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoölogy and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, English and Philosophy, Domestic Science, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, Greek, German, Oratory, and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

"The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common school, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those sciences and arts which bear directly upon *agriculture and kindred industrial pursuits*."

CALENDAR OF EXERCISES.

1898-1899.

Entrance Examinations	Monday, September 5, 1898
Registration of Students	Monday, September 5, 1898
Fall Term begins	Tuesday, September 6, 1898
Fall Term closes	Friday, December 2, 1898
Winter Term begins	Monday, December 5, 1898
Holiday Recess begins	Friday, December 23, 1898
Holiday Recess closes	Monday, January 2, 1899
Winter Term closes	Friday, March 10, 1899
Spring Term begins	Monday, March 13, 1899
Baccalaureate Address	Sunday, May 28, 1899
State Board of Agriculture meets	Wednesday, May 31, 1899
Commencement Exercises	Thursday, June 1, 1899

Calendar, 1898-1899

SEPTEMBER, 1898.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	....

OCTOBER, 1898.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	....	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	....	....	....	....	....

NOVEMBER, 1898.

S.	M.	T.	W.	T.	F.	S.
....	....	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	....	....	....

DECEMBER, 1898.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JANUARY, 1899.

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	....	....	....	....
....	....	....	....	....	....	....

FEBRUARY, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	....	....	....	....

MARCH, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	....

APRIL, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	....	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	....	....	....	....	....	....

MAY, 1899.

S.	M.	T.	W.	T.	F.	S.
....	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	....	....	....

JUNE, 1899.

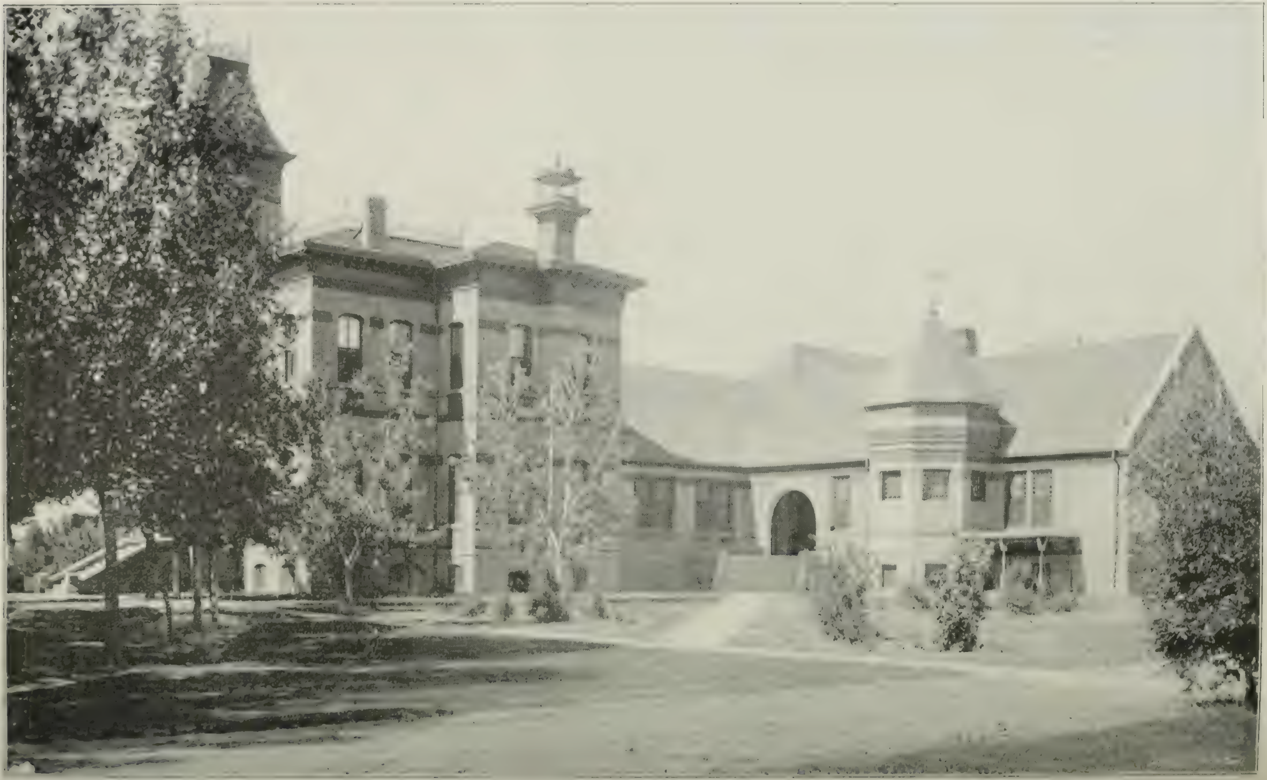
S.	M.	T.	W.	T.	F.	S.
....	....	....	....	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	....

JULY, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	....	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	....	....	....	....	....

AUGUST, 1899.

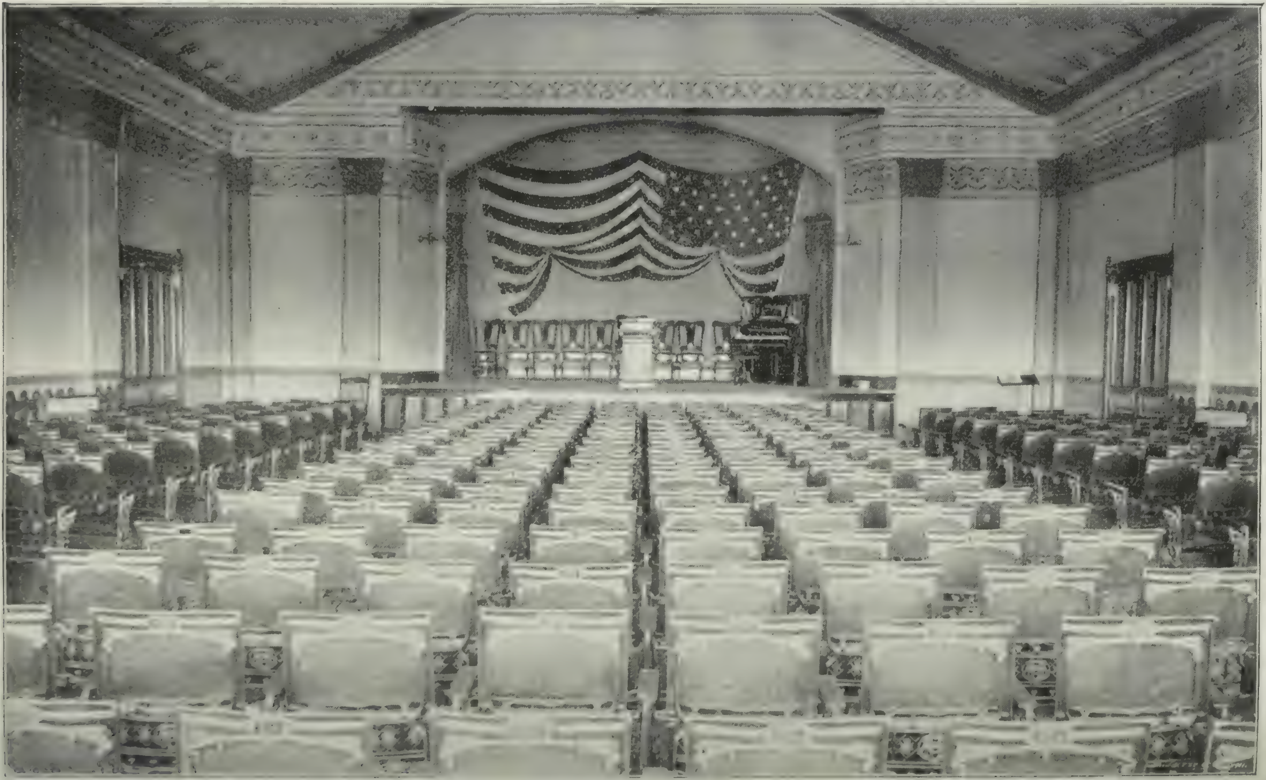
S.	M.	T.	W.	T.	F.	S.
....	....	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	....	....



MAIN COLLEGE BUILDING.

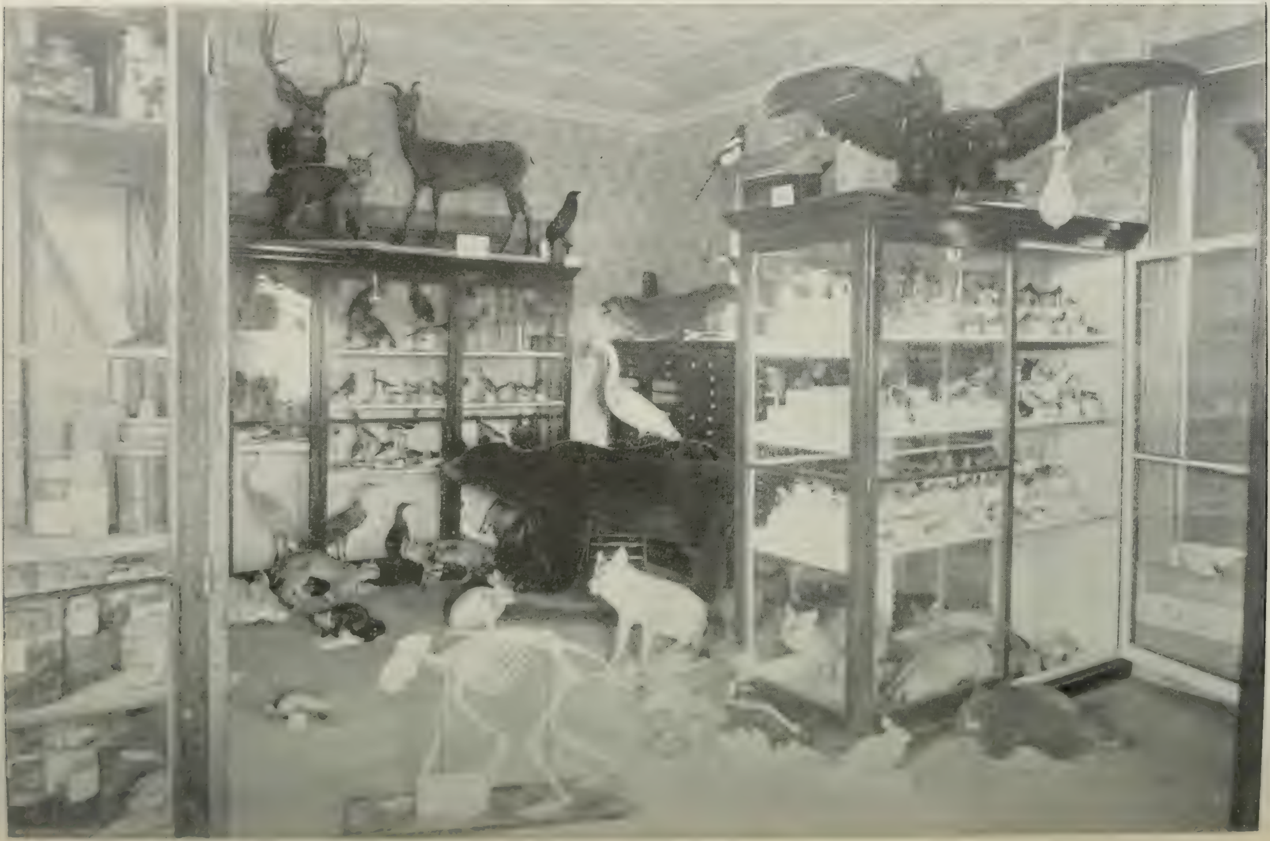
[illegible]

[illegible]



THE CHAPEL. THREE HUNDRED OPERA CHAIRS.

CORNER OF LIBRARY.

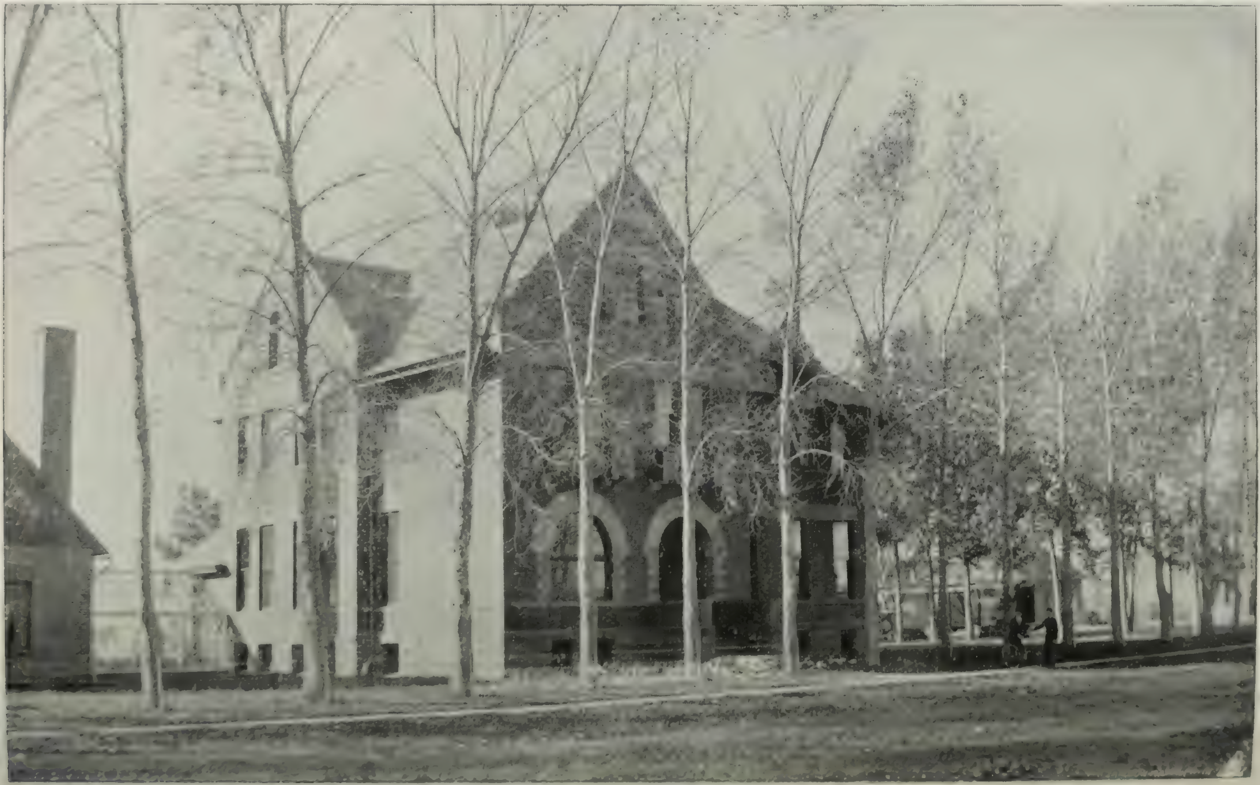


CORNER OF MUSEUM

SOME COLLEGE BUILDINGS—EAST FRONT COLLEGE AVENUE.

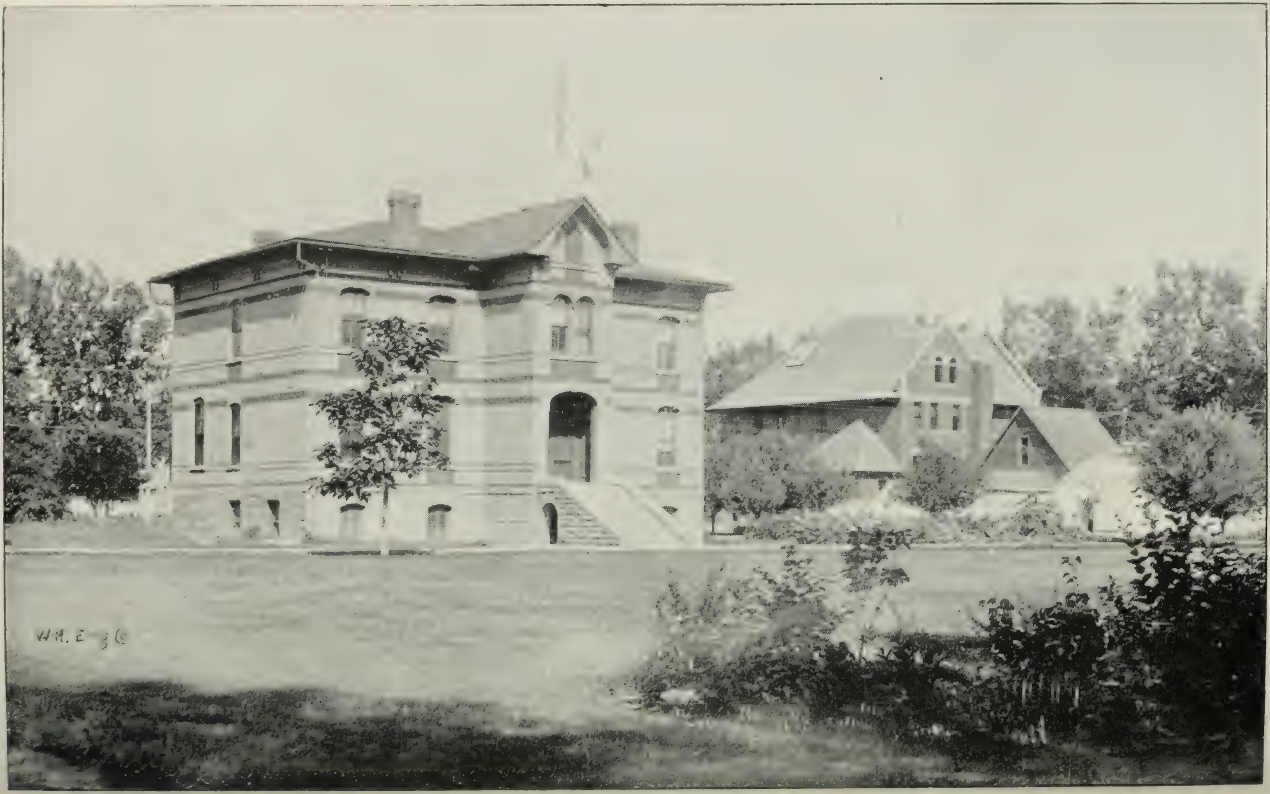
SOME COLLEGE BUILDINGS—NORTH FRONT, LAUREL STREET

AGRICULTURAL HALL.

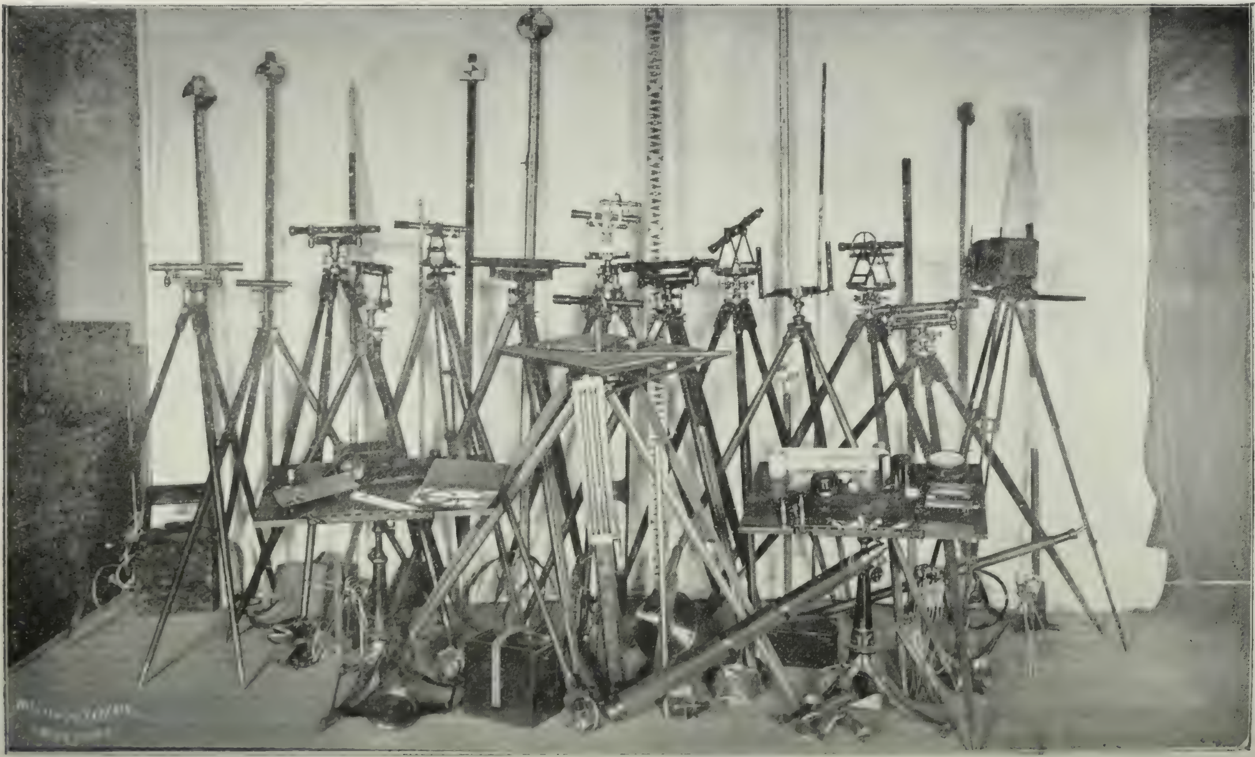


HORTICULTURAL HALL.

CHEMICAL LABORATORY



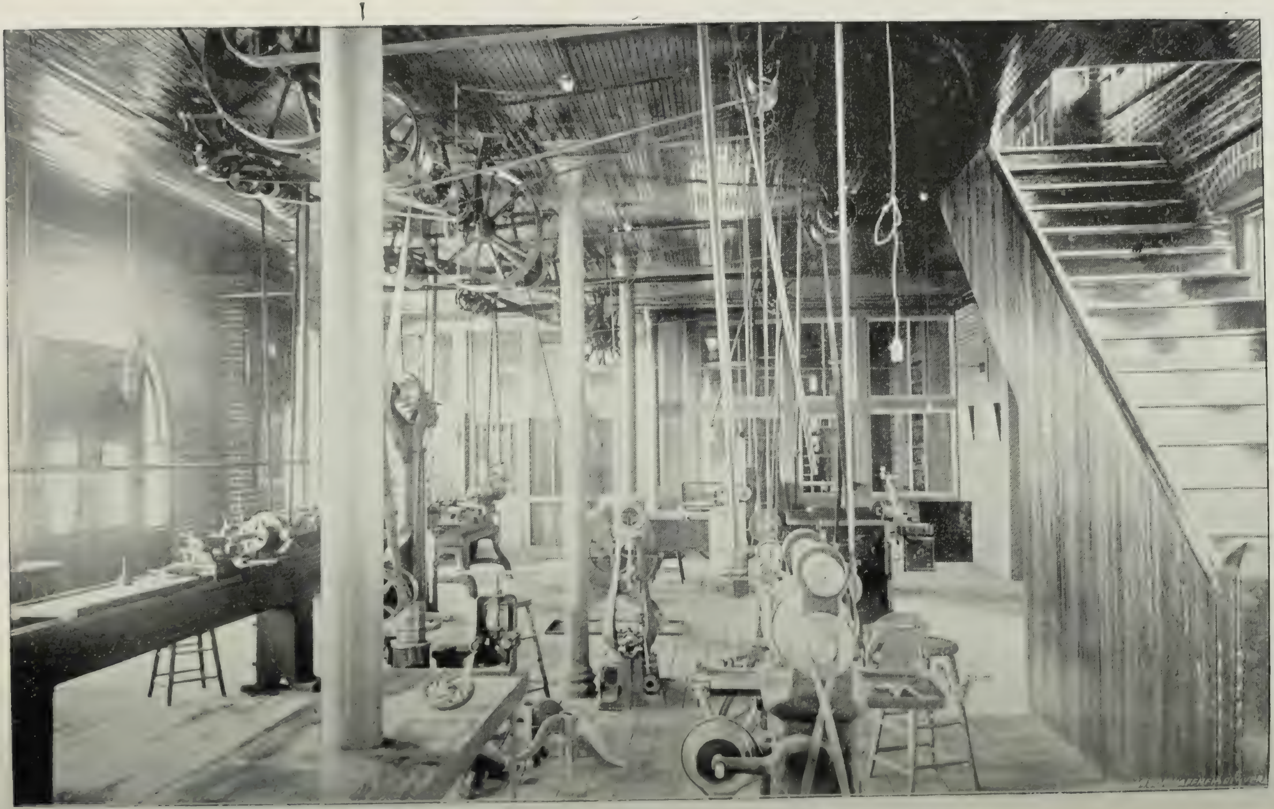
CIVIL AND IRRIGATION ENGINEERING BUILDING.



SURVEYING AND ENGINEERING INSTRUMENTS.

MECHANICAL ENGINEERING BUILDING.

ENGINE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.



MACHINE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.

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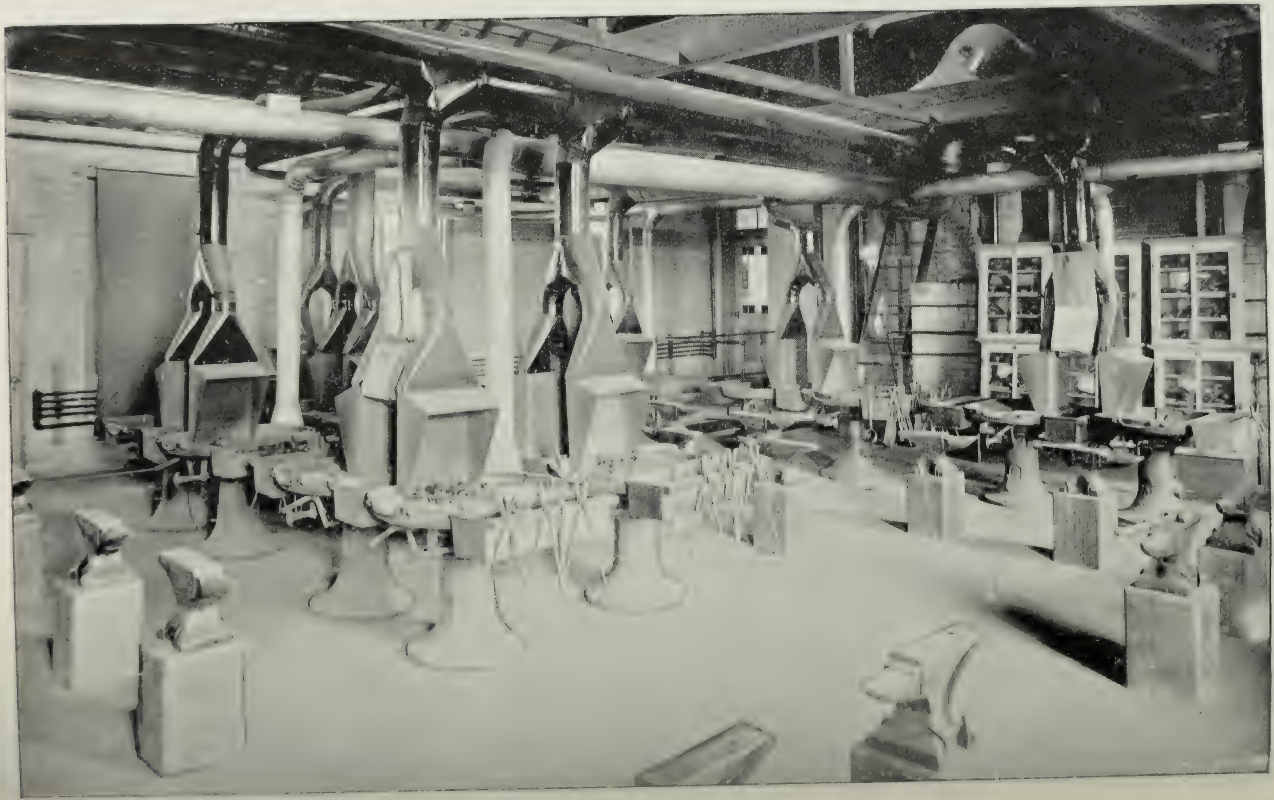
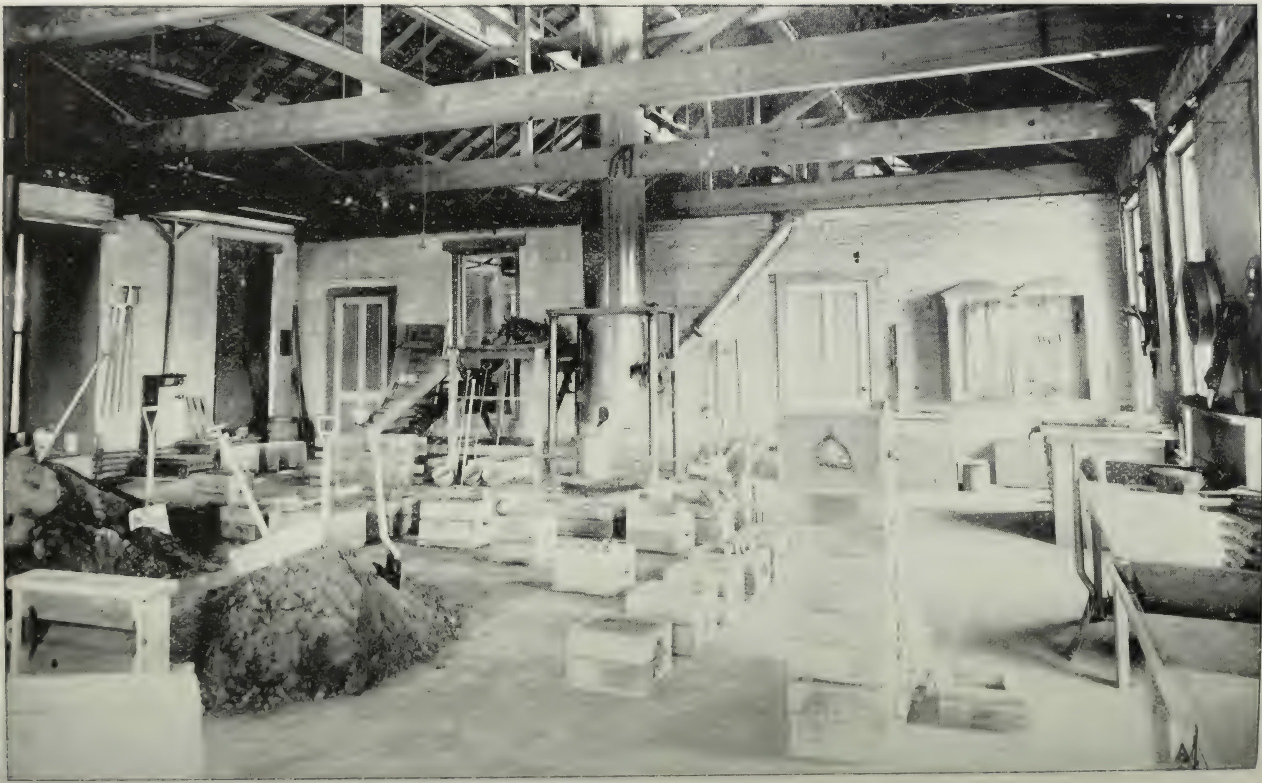


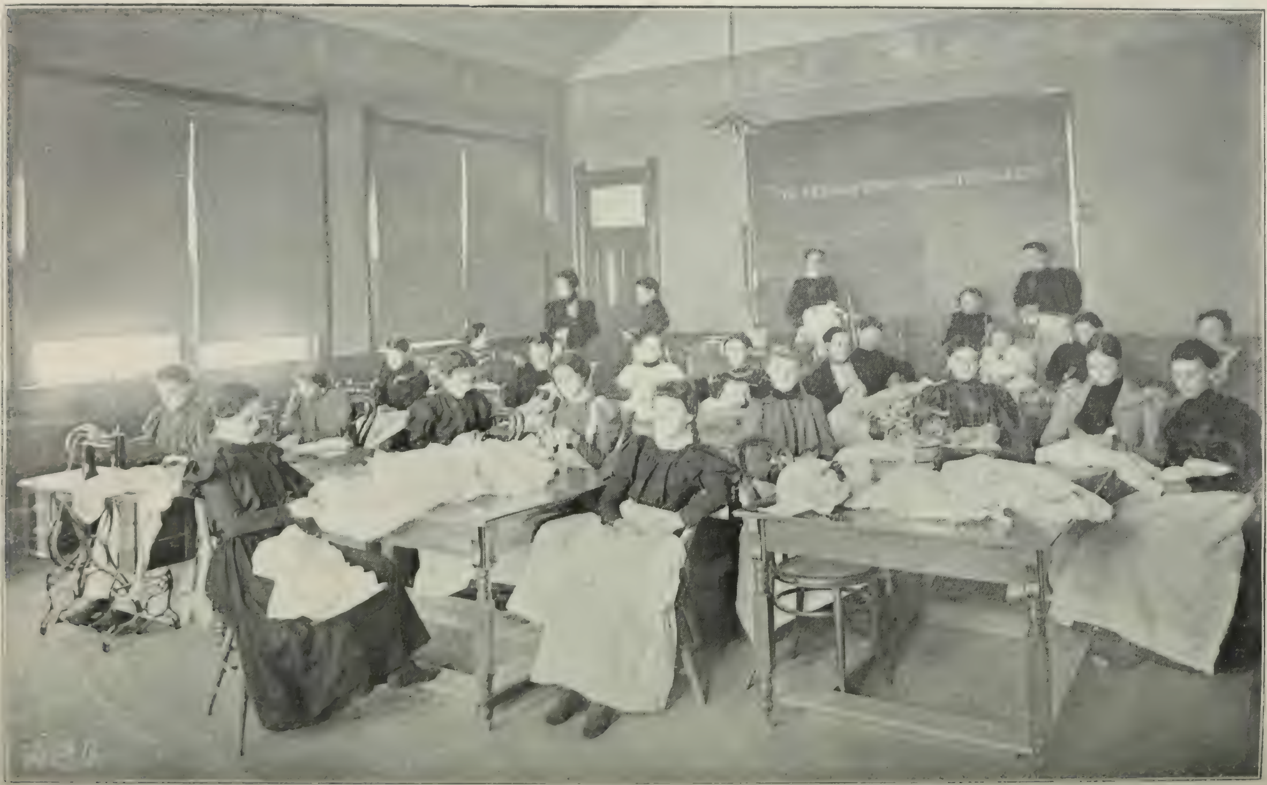
FORGE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING



FOUNDRY ROOM DEPARTMENT OF MECHANICAL ENGINEERING

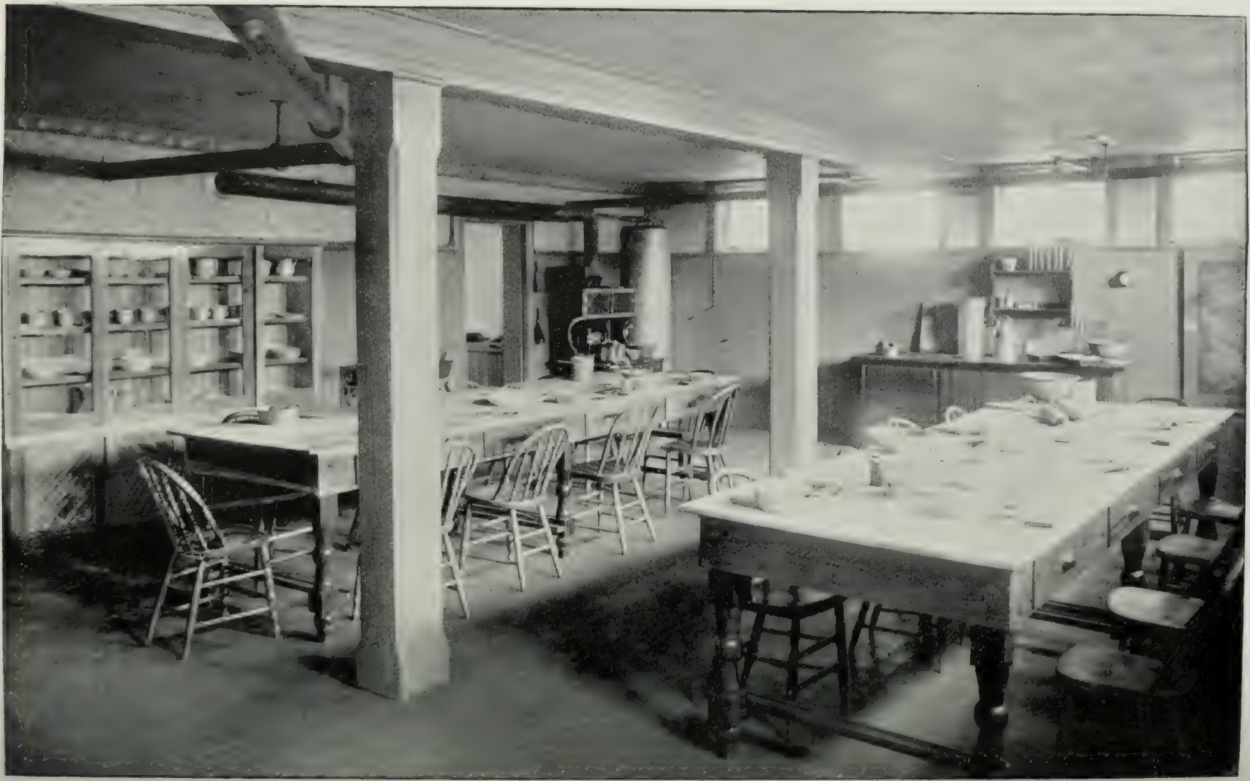
INTERIOR VIEW—COLLEGE GROUNDS.

DOMESTIC SCIENCE BUILDING.



SEWING CLASS—DEPARTMENT OF DOMESTIC SCIENCE.

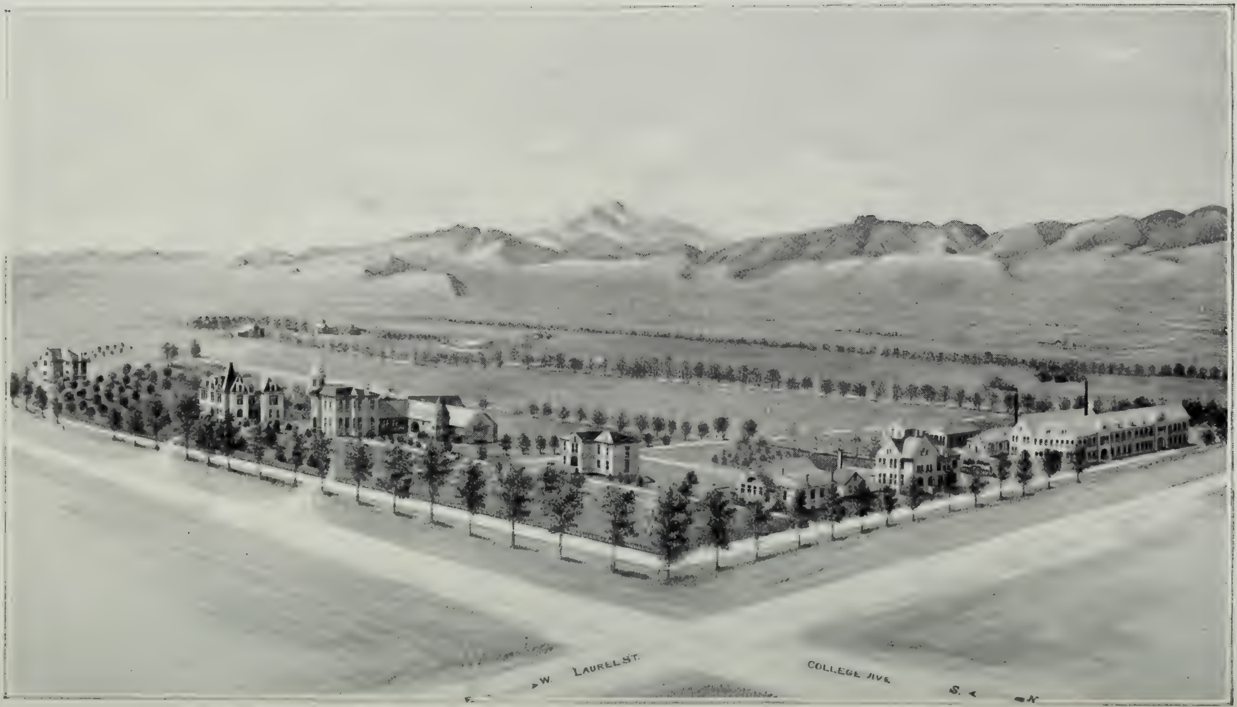
COOKING CLASS—DEPARTMENT OF DOMESTIC SCIENCE.



KITCHEN—DEPARTMENT OF DOMESTIC ECONOMY.

MILITARY COMPANIES

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



A GENERAL VIEW OF THE COLLEGE GROUNDS AND BUILDINGS.

REGISTER

OF THE

OFFICERS AND STUDENTS

OF

The State Agricultural College

FORT COLLINS, COLORADO

◆

Courses of Study
and General Information

1898-1899

◆

Published by The State Agricultural College
Fort Collins, Colorado
1899

THE SMITH-BROOKS PRINTING CO., DENVER.

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30832

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FRED ALFORD, B. S	Chemist
JOSEPH LOWNES, B. S	Chemist
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ROBT. E. TRIMBLE, B. S	Meteorologist and Irrigation Engineer
E. S. G. TITUS, B. S	Dairyman

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Arkansas Valley Station, Rocky Ford, Colorado.

J. E. PAYNE, M. S. . . . . Superintendent
Rainbelt Station, Cheyenne Wells, Colorado.

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*Director after August 31, 1899.

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Professor of Military Science and Tactics.

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*Barton O. Aylesworth, A. M., LL. D., after August 1, 1899.
†Charles J. Gilkison, B. S., after July 1, 1899.

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RALPH H. HESS, B. S., *Mathematics.*

MARY E. GILL, *Principal Preparatory Department.*

Librarian:

MARGUERITE E. STRATTON, B. S.

Stenographer, President's Office:

FRANK H. THOMPSON, B. S.

REGISTER OF STUDENTS

AND

GRADUATES.

Register of Students.

1898-1899.*

SENIOR CLASS.

Lee Raymond Cooke	Fort Collins, Colorado
Frank Corbin	Fort Collins, Colorado
Howard Empfield Emigh	Fort Collins, Colorado
Raymond Ranney Fisk	Fort Collins, Colorado
Newton Monroe Fitch	Millbank, South Dakota
Lewis Clifford Hall	Cañon City, Colorado
William Ralston Headden	Fort Collins, Colorado
Herman Howard	Greeley, Colorado
Addison Lindsley Kellogg	Rocky Ford, Colorado
William Joseph Littleton	Trinidad, Colorado
Charles William Mayers	Littleton, Colorado
Harry Clifford Miller	Hotchkiss, Colorado
Jacob Cornelus Mulder	Maxwell City, New Mexico
Charles Sterling Newell	Berthoud, Colorado
Marguerite Prendergast	Fort Collins, Colorado
George Augustus Smith	Orchard, Colorado
James A. Stump	Cañon City, Colorado
Edward Sharpe Gaige Titus	Ottawa, Kansas

18.

JUNIOR CLASS.

Laura Armstrong	Fort Collins, Colorado
Clifford Spencer Atherly	Fort Collins, Colorado
Aaron Vanderburgh Benson	Loveland, Colorado

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* This record is made prior to the close of the Spring term. The result of the term's work may change the classification somewhat.

Rolland Newton Bonnett..................Fort Collins, Colorado
Harry Alexander Boyd........................Denver, Colorado
Luther Dunham Cowan..................Fort Collins, Colorado
Clara Mary Cunningham..................Fort Collins, Colorado
Thomas McMurtie Donelson..................Coulter, Colorado
Earl Douglass..........................Fort Collins, Colorado
Nellie May Drake.......................Fort Collins, Colorado
Stuart Bennett Garbutt..................Fort Collins, Colorado
Walter Patrick Hurley........................Denver, Colorado
Roy Sylvenes Lumry....................Fort Collins, Colorado
Otto Wesley Lunnon....................Fort Collins, Colorado
Adolph Frederick Lindon....................Bryant, Colorado
William Fleming Marshall..................Denver, Colorado
Newton Webster Matthews..................Boulder, Colorado
Harry Hammond Murray................Fort Collins, Colorado
Emmet Cleburne McAnelly...............Fort Collins, Colorado
Ray Ernest McClave........................Platteville, Colorado
Dana Quick McComb........................Laveta, Colorado
Robert Lee McConnell........................Laveta, Colorado
Thorwald Vifold Norgaard..................Gypsum, Colorado
Elizabeth Ann Nugent......................Laporte, Colorado
Robert Ansel Pierce......................Fort Collins, Colorado
Evell Etta Richardson..................New Windsor, Colorado
Ethel Maud Smith......................Fort Collins, Colorado
Henry Fulton Sturdevant.........Steamboat Springs, Colorado
Edwin Aaron Sutton....................Breckenridge, Colorado
Pauline Welles Taft..........................Laporte, Colorado
Oliver Baker Tomlin....................Fort Collins, Colorado
Oma Mary Veazey.......................Fort Collins, Colorado
Frances May Warren......................Laporte, Colorado
Anna Martha Wood..........................Eaton, Colorado
34.

SOPHOMORE CLASS.

James Henderson Andrews..............Fort Collins, Colorado
Claude Harold Annis.....................Fort Collins, Colorado
Leroy Arnold Baker......................Fort Collins, Colorado
Barton Glen Dale Bishopp...............Virginia Dale, Colorado
Homer Pennock Curtis......................Littleton, Colorado
Charles Catlin Durkee...............Colorado Springs, Colorado
Howard Joshua Faulkner.................Fort Collins, Colorado

Herbert Preston Galliher	Hotchkiss, Colorado
Lenore Gunn	Timnath, Colorado
Ralph Walter Haynes	Fort Lupton, Colorado
Clifford House	Cheyenne, Wyoming
Ross Dalbey Howard	Fort Collins, Colorado
Antoine Jacob	Conejos, Colorado
Charles Searing Mead	Arkansas City, Kansas
Thomas William Metcalfe	Fort Collins, Colorado
Cyrus Erle McComb	Laveta, Colorado
Oro McDermith	Wolcott, Colorado
Bertha May Newlon	Laporte, Colorado
Joseph Newcomb Ostrander	Coulter, Colorado
Richard Robinson Parks	Gunnison, Colorado
Frank Olaf Rasmussen	Delta, Colorado
Stanley Braymer Sherman	Montrose, Colorado
Glynn Buell Stannard	Fort Collins, Colorado
Ned Virgil Tanner	Florence, Colorado
Richard Waddy Tanner	Florence, Colorado
Charles Eugene Towner	Fort Collins, Colorado
Frank Guilford Traber	Hamilton, Ohio
William Francis Tucker	East Weymouth, Massachusetts
John Wilson	Eaton, Colorado
Robert Chase Woods	Farmington, New Mexico

30.

FRESHMAN CLASS.

Lorna Elizabeth Annis	Fort Collins, Colorado
Edward Carleton Baker	Loveland, Colorado
Clyde Atlas Bartels	Pueblo, Colorado
Annie Caroline Beach	Fort Collins, Colorado
Edith Anna Beers	Fort Collins, Colorado
Delphina Isabell Betts	Fort Collins, Colorado
Fred Corry Bishopp	Virginia Dale, Colorado
Albert Lareine Breniman	Fort Collins, Colorado
Adelaide Stone Bristol	Fort Collins, Colorado
Jay Lloyd Cain	Laporte, Colorado
Lewis Ezra Cattell	Deuel, Colorado
Leslie Newton Chatfield	Littleton, Colorado
James Nathaniel Clark	Leadville, Colorado
Lina Louise Crandall	Fort Collins, Colorado
Gardner Ransom Cushing	Fort Collins, Colorado

Austin Downey........................Fort Collins, Colorado
James Henry Drinkwater..................Denver, Colorado
Edward Ewing....................Glenwood Springs, Colorado
Hattie Frances Gage....................Fort Collins, Colorado
Lena May Gilkison......................Fort Collins, Colorado
Ernest Nelson Graves....................Broomfield, Colorado
Okey Gregg...........................Cañon City, Colorado
Ida May Hart...........................Manitou, Colorado
Frank Gallup Haynes..................Fort Lupton, Colorado
John Lee Henderson......................Sterling, Colorado
Harry Valant Jessup....................Fort Collins, Colorado
Wallace Hazard Jones...................Fort Collins, Colorado
Elizabeth May Kelly....................Fort Collins, Colorado
Nellie Mary Killgore....................Fort Collins, Colorado
Clifford Lansdowne King...............Idaho Springs, Colorado
Frederick Newson Langridge................Boulder, Colorado
Ernest Charles Lidle....................Walsenburg, Colorado
Clara Louise Love......................Fort Collins, Colorado
Ethel Emma McLellon....................Graneros, Colorado
Arthur Garfield Newell.......................Wray, Colorado
Emma Blanche Nicholson..................Boulder, Colorado
James Dombey Norvell..................Fort Collins, Colorado
Oliver Porter Pennock.....................Bellvue, Colorado
Thomas Quine..............................Rico, Colorado
Ira Delburt Redington....................Lafayette, Colorado
Robert Earl Richardson...............New Windsor, Colorado
Joy Ricketts...........................Fort Collins, Colorado
Alfred Heartley Ripley.....................Eldred, Colorado
Constantia Meryle Sargent..............Fort Collins, Colorado
Eunice Lucretia Sargent.................Fort Collins, Colorado
Olive Louise Sheldon...................Fort Collins, Colorado
Harry True...............................Nepesta, Colorado
Irwin Walker Veazey...................Fort Collins, Colorado
Eva Cordelia Welch....................Fort Collins, Colorado
Mabel Cordelia Woods..................Fort Collins, Colorado

50.

SUB-FRESHMAN CLASS.

Walter Atchison.......................Chugwater, Wyoming
Harry Erral Aylsworth.......................Baggs, Wyoming
Vernard Babbitt............................Eaton, Colorado

Ray Baxter	Fort Collins, Colorado
George Anton Beers	Fort Collins, Colorado
Edith Maud Benson	Fort Collins, Colorado
Helen Agnes Berry	Stout, Colorado
Raymond Frank Blood	Denver, Colorado
Walter Albert Bowles	Littleton, Colorado
Joseph Brazelton	Elbert, Colorado
John Messer Brisben	Denver, Colorado
Clarence Gillespie Brown	Salida, Colorado
Clyde Hallett Brown	Fort Collins, Colorado
Harriot May Buckles	Fort Collins, Colorado
Charles Wesley Burnhimer	Breckenridge, Colorado
Ralph Sneath Clevenger	Arkansas City, Kansas
Albert Roy Cliff	Stout, Colorado
Alice Blanche Coleman	Auburn, Nebraska
Clayton Carrell Coleman	Fort Collins, Colorado
John Francis Collins	Brooklyn, New York
Ralph Collins	Pruden, Colorado
Ruluf Alexander Covell	Cañon City, Colorado
Edwin Worth Daugherty	Fort Collins, Colorado
Barclay Samuel Edwards	Timnath, Colorado
Theodore Wattles Faunce	Newtonville, Massachusetts
Charles Elmer Franklin	Willford, Nebraska
Will Sherman Franklin	Willford, Nebraska
Graham Fuller	Fort Collins, Colorado
Grace Alice Gant	Fort Collins, Colorado
Ernest Elton Garrett	Fort Collins, Colorado
Frances Josephine Gilbert	Boulder, Colorado
Marie Gill	Laramie, Wyoming
Eugene Norman Glover	Fort Collins, Colorado
Earl Gusnell Gooch	Rollinsville, Colorado
Clifford Ludivic Goodner	Mosca, Colorado
Leonard Chase Graves	Broomfield, Colorado
Charles Dickerson Gutshall	Ouray, Colorado
Harry Patterson Gutshall	Ouray, Colorado
Byron J. Haldeman	Fort Collins, Colorado
Guss Hames	Colorado City, Colorado
Harry Randolph Hankins	Berthoud, Colorado
Vernon Dwight Hann	Harlan, Iowa
Ansel Harding	Fort Collins, Colorado
Mary Heflebower	Fort Collins, Colorado
Carlton Mortimer Jennings	Fort Collins, Colorado

Charles Marshall Jones	Fort Collins, Colorado
Edna Grace Johnson	Loveland, Colorado
Charles Fred Kelley	Colorado City, Colorado
Charles William Kelly	Fort Collins, Colorado
Minnie Reed Key	Canfield, Colorado
Charles Bruce Kortz	Big Springs, Nebraska
John Herbert Lewis	Timnath, Colorado
Mark Lazarus Love	Glenwood Springs, Colorado
Jesse Rice Moore	Fort Collins, Colorado
Charles Leland Murray	Fort Collins, Colorado
William Jefferson McAnelly	Fort Collins, Colorado
William Joseph McDermith	Wolcott, Colorado
Charles Miller	Fort Collins, Colorado
Harry Sharp McNeill	Rico, Colorado
Serope Yotneghpire Parnag	Armenia, Turkey
Jane Amelia Phillips	Elizabeth, Colorado
John Atcheson Phillips	Elizabeth, Colorado
Nellie May Ralph	Fort Collins, Colorado
Joseph Francis Reed	Fort Collins, Colorado
Mabel Ricketts	Fort Collins, Colorado
Emma Ada Schelt	Fort Collins, Colorado
Thane Estabrook Schureman	Peoria, Illinois
Wesley Oro Spensley	Leadville, Colorado
Fred Stearley	Laporte, Colorado
Park Eaton Taylor	Fort Collins, Colorado
John Olie Thistle	Grand Junction, Colorado
Claude Lewis Titus	Fort Collins, Colorado
Mary Burford Tormey	Eaton, Colorado
Edward Forrester Triplett	Denver, Colorado
Ida Eva Walter	Bellvue, Colorado
Clarence Franklin Webb	Walden, Colorado
Stephen Henry Whitney	Uva, Wyoming
Maggie May Wilkinson	Pine Bluffs, Wyoming
Otis Witcher	Cotopaxi, Colorado
Jessie Sarah Woods	Fort Collins, Colorado
	80.

PREPARATORY CLASS.

Sidney George Arscott	Fort Collins, Colorado
Lina Florence Baird	Garnett, Kansas
John Melvin Bean	Fort Collins, Colorado

Truman Purdy Brewer	Aztec, New Mexico
Alva Bennett Calvert	Dixon, Wyoming
Eva Sloan Calvert	Dixon, Wyoming
Kirk Calvert	Baggs, Wyoming
Nellie Ermina Coughey	Elgin, Illinois
Glenville Arthur Collins	Denver, Colorado
Malcom Edward Connors	Walden, Colorado
Edwin Arthur Drake	Fort Collins, Colorado
Earl Guy England	Farmington, New Mexico
William Hervey Fowler	Ouray, Colorado
John Gordon Hampton	Durango, Colorado
Ada Irene Hart	Manitou, Colorado
Frank Hartman, Jr.	Durango, Colorado
George Washington Hedgpeth	Fort Collins, Colorado
William Joseph Hedgpeth	Fort Collins, Colorado
Frederick William Hilliard	Fort Collins, Colorado
Estill Donan Holland	Hot Springs, Arkansas
Eldry Earnest Hornback	Carthage, Missouri
Frank Freeman Jessup	Fort Collins, Colorado
Thomas Franklin Key	Canfield, Colorado
Clarence Dwight Kibler	Fort Collins, Colorado
Grace Littlefield	Montevista, Colorado
George Lomas	Guadalupe y Calvo, Mexico
Lizzie Marie Looker	Cheyenne, Wyoming
Edna Ella Love	Fort Collins, Colorado
Lewis Martin	Fort Collins, Colorado
Mary Elizabeth Metcalfe	Fort Collins, Colorado
Enoch Josiah Mills	Linton, Kansas
Sadie Amanda Montgomery	Fort Collins, Colorado
Nellie Isabelle Mullin	Eaton, Colorado
James Francis Naylor	Loveland, Colorado
William Edward O'Loughlin	Teller, Colorado
George Henry Rees	Colorado City, Colorado
James Willis Rodgers	Longmont, Colorado
Edward Merritt Seely	Mosca, Colorado
William Frederick Seely	Mosca, Colorado
Myrtle May Smoke	Fort Collins, Colorado
Kyle Tormey	Eaton, Colorado
Glenn Garlock Walter	Fort Collins, Colorado
Dora Pratt Wilkinson	Pine Bluffs, Wyoming
Isabel Evelyn Wilkinson	Pine Bluffs, Wyoming
Ernest Harry Wolcott	Elizabethtown, New Mexico

45.

COMMERCIAL DEPARTMENT—SENIOR CLASS.

Edward Affolter	Longmont, Colorado
Byron King Baird	Cheyenne, Wyoming
Charles James Gilkison (B. S., C. A. C. '93)	Fort Collins, Colorado
George Franklin Kern	New Windsor, Colorado
Lizzie May Nicholson	Boulder, Colorado
Cecil Gilfillan Philip	Fort Lupton, Colorado
	6.

COMMERCIAL DEPARTMENT—JUNIOR CLASS.

John Lawrence Ankeny	Wheatland, Wyoming
Edgar Delano Avery	Fort Collins, Colorado
Arthur William Bach	Salida, Colorado
Robert Baldwin	Colorado Springs, Colorado
Edward Charles Bates	Gunnison, Colorado
Clark Levi Boughton	Fort Collins, Colorado
Elsa Alzina Bristol	Fort Collins, Colorado
Ella Mills Bruin	Butte, Montana
Eunice Chatfield	Littleton, Colorado
John Clifford	Salida, Colorado
Mary Azel Dickerson	Olathe, Colorado
Harrison Biggs Dillard	Delta, Colorado
Nellie Dotts	Eddyville, Iowa
William John Durkee	Delta, Colorado
James Elliott	Timnath, Colorado
Lawrence Cale Estes	Gunnison, Colorado
Mard Nickels Flitner	Leadville, Colorado
Rudolph Jacob Frick	Colorado Springs, Colorado
David Cyrus Harned	Livermore, Colorado
John Russell James	Spring Hill, New Mexico
Lottie Dell King	Buda, Illinois
Addie Louise Kortz	Big Springs, Nebraska
Clyde David Lang	Gunnison, Colorado
William Garfield Lewis	Timnath, Colorado
Joseph Lindsay, Jr.	Leadville, Colorado
John Ralph Littlefield	Montevista, Colorado
Daisy Livernash	Fort Collins, Colorado
Jasper Loomis	Fort Collins, Colorado
Dwight Mandeville	Fort Collins, Colorado
James McKean Moore	Fort Collins, Colorado

Eda Hattie McCain	Fort Collins, Colorado
Charles Arksey McCollum	Leadville, Colorado
Alexander McDougall	Bordeaux, Wyoming
George Dick McDougall	Bordeaux, Wyoming
Alanson Richard McGraw	Bailey, Colorado
Fred Donald McKee	Gunnison, Colorado
William Edgar Naylor	Loveland, Colorado
Irving David Owens	Castle Rock, Colorado
George Watrous Patterson	Fort Collins, Colorado
James Dowling Pease	Georgetown, Colorado
Mary Elizabeth Quick	Fort Collins, Colorado
Albert Henry Ralph	Fort Collins, Colorado
Fred Wilmot Richards	Fort Collins, Colorado
Henry Pierce Roberts	Idaho Springs, Colorado
Taylor John Robertson	Fort Collins, Colorado
Delfino Salazar	San Luis, Colorado
Edith Agatha Schang	Fort Collins, Colorado
John James Shackleford	Gunnison, Colorado
Emmett Oliver Smith	Sterling, Colorado
Edith Pearl Smith	Fort Collins, Colorado
Florence May Stewart	Fort Collins, Colorado
William Strever	Berthoud, Colorado
Earl Levi Tedmon	St. Cloud, Colorado
Homer Dickinson Thayer	Timnath, Colorado
Orren Everett Vaughn	Wray, Colorado
Gertrude Leah Warner	Durango, Colorado
Marion Elmore Warren	Laporte, Colorado
Jennie May Welch	New Windsor, Colorado
William Clarence Woods	Farmington, New Mexico

59.

UNCLASSIFIED STUDENTS.

Abbie Carleton Alford	Fort Collins, Colorado
Elizabeth Marion Allen	Benkelman, Nebraska
Frances Claire Avery	Fort Collins, Colorado
Edward Richard Baker	Fort Collins, Colorado
Raymond Jasper Baker	Fort Collins, Colorado
Aureli Sarah Boughton	Fort Collins, Colorado
Harry Haines Gaume	Fort Collins, Colorado
Carrie Hathaway Gilbert	Boulder, Colorado

Charles Halloway (25th Inf. U. S. A., Fort Logan)........ ....Culloden, Georgia
William Ashton Hilton......................Loveland, Colorado
William Ernest Michaud......................Laporte, Colorado
William Henry Mullin..........................Eaton, Colorado
Minnie Mary Newsom........................Denver, Colorado
Julius Peter Oleson............................Eagle, Colorado
Anna Picken (B. S. C. A. C. '97)..........Fort Collins, Colorado
Frances Eliza Potter...........................Wyoming, Iowa
Mary Corinne Pratt......................Fort Collins, Colorado
Emil Sandsten (B. Ag. U. of Minnesota '95; M. S. ibid. '97).. ....St. Anthony Park, Minnesota
Nellie Scott.............................Fort Collins, Colorado
Marie Louise Sharp...........................Denver, Colorado
Wilma Turk.............................Fort Collins, Colorado
Minnie Regina White........................Durango, Colorado
Floyd Stephens Youtsey.................Fort Collins, Colorado
23.

SUMMARY.

	Male.	Female.	Total.
Seniors	17	1	18
Juniors	24	10	34
Sophomores	28	2	30
Freshmen	30	20	50
Sub-Freshmen	62	18	80
Preparatory Class	31	14	45
Commercial Course—Seniors	5	1	6
Commercial Course—Juniors	43	16	59
Unclassified Students	10	13	23
Total	250	95	345

The students represent fifteen states, one territory, and two foreign countries as follows: Arkansas, 1; Colorado, 293; Georgia, 1; Illinois, 3; Iowa, 3; Kansas, 5; Massachusetts, 2; Minnesota, 1; Missouri, 1; Montana, 1; Nebraska, 6; New Mexico, 7; New York, 1; Ohio, 1; South Dakota, 1; Wyoming, 16; Mexico, 1; Armenia, Turkey, 1. Total, 345.

The Colorado students represent thirty-eight counties as follows: Arapahoe, 15; Boulder, 13; Clear Creek, 3; Chaffee, 3;

Conejos, 1; Costilla, 4; Delta, 5; Dolores, 2; Douglas, 1; Eagle, 4; El Paso, 8; Elbert, 3; Fremont, 8; Garfield, 2; Gilpin, 1; Grand, 2; Gunnison, 6; Huerfano, 4; Lake, 5; La Plata, 2; Larimer, 158; Las Animas, 3; Logan, 2; Mesa, 1; Mineral, 1; Montrose, 2; Morgan, 3; Otero, 1; Ouray, 3; Park, 1; Phillips, 1; Pueblo, 3; Rio Grande, 2; Routt, 1; Saguache, 1; Summit, 2; Weld, 14; and Yuma, 2. Total, 293.

Graduates.

1884.

George H. Glover, B. S., (D. V. M., Iowa Agricultural College) Veterinary Surgeon..1818 Arapahoe St., Denver, Colorado

Elizabeth Coy, B. S., (Mrs. James W. Lawrence)..Fort Collins, Colorado

Leonidas Loomis, B. S., Stockman.........Fort Collins, Colorado

3.

1885.

Cora B. Blinn, B. S.....11 North Broad St., Trenton, New Jersey

Edna L. Hice, B. S., Teacher..............Fort Collins, Colorado

Lelia L. Loomis, B. S., (Mrs. T. H. Robertson)..Fort Collins, Colorado

Grace Espy Patton, B. S.—M. S., 1897—(Mrs. W. H. Cowles) Professor of English and Sociology, State Agricultural College of Colorado, 1885-1897; State Superintendent of Public Instruction of Colorado, 1897-1899..Denver, Colorado

Robert E. Trimble, B. S., Assistant Meteorologist and Irrigation Engineer, State Agricultural College of Colorado................................Fort Collins, Colorado

Helen White, B. S., (Mrs. John Rigden).......Timnath, Colorado

6.

1886.

Wilbert J. Sickman, B. S., Clerk of the District Court of Larimer County, Colorado, until 1896, deceased...Fort Collins, Colorado

1.

1887.

Eleanor F. Gill, B. S., (Mrs. William Frazer)....Ouray, Colorado

Marguerite E. Stratton, B. S., Librarian, State Agricultural College of Colorado, 1895— ....Fort Collins, Colorado

Lerah G. Stratton, B. S., (Mrs. P. J. McHugh) Librarian, State Agricultural College of Colorado, 1887-1891...... ....Fort Collins, Colorado

Edwin G. Nettleton, B. S., Assistant Engineer, Bear River Canal, Utah, 1891-1892; Assistant Engineer, Sonora and Sinaloa Canal, Mexico, 1893; Merchant and Engineer....................................Nampa, Idaho

4.

1888.

Lewis A. Coffin, B. S., Assistant Chemist, State Agricultural College of Colorado, 1888-1889; Farmer............... ....Longmont, Colorado

Harvey H. Griffin, B. S., Superintendent of the San Luis Valley Experiment Station, 1889-1891; Superintendent New Mexico Experiment Station at Aztec, 1892-1897; Superintendent Arkansas Valley Experiment Station, 1898—...............................Rocky Ford, Colorado

Josephine Lee, B. S., Teacher City Schools................ ....Boulder, Colorado

Jennie E. McLain, B. S., Professor of History and Geography, State Normal School, Peru, Nebraska, 1891-1897; Professor of History and Literature, State Agricultural College of Colorado, 1897— ....Fort Collins, Colorado

4.

1889.

Lucy Bell, B. S., (Mrs. C. V. Benson)........Loveland, Colorado

Arthur L. Davis, B. S., (M. D., 1895, Gross Medical College, Denver) Resident Physician, St. Anthony's Hospital, Denver, 1895-1897, Physician...........Durango, Colorado

2.

1890.

Clarence V. Benson, B. S., (LL. B., University of Michigan, 1892; M. S., State Agricultural College of Colorado, 1896) Cashier, Bank of Loveland........Loveland, Colorado

Velma V. Benson, B. S., (Mrs. A. Beebe)......Loveland, Colorado

Burt C. Buffum, B. S., (M. S., 1894) Professor of Agriculture and Horticulture, University of Wyoming; Vice-Director of Experiment Station..............Laramie, Wyoming

Charles A. Duncan, B. S., Irrigation Assistant, Agricultural College of South Dakota, 1891; Superintendent of the San Luis Valley Experiment Station, 1893-1896; Farmer....................................Timnath, Colorado

Newton C. Garbutt, B. S., Attorney-at-law. .Fort Collins, Colorado

Helen E. Lunn, B. S., Bookkeeper.........Fort Collins, Colorado

Harry R. Temple, B. S., Millman................Ward, Colorado

Cora B. Thoman, B. S., (Mrs. Clarence Jarbeau) Principal Preparatory Department, State Agricultural College of Colorado, 1897-1898........................Ward, Colorado

Mary L. Weaver, B. S., (B. Ph., Ohio State University).... ....231 Church St., Urbana, Ohio

9.

1891.

Charles R. Evans, B. S., Merchant and Fruit Grower...... ....Fort Collins, Colorado

Minnie E. McLain, B. S., Teacher..........Fort Collins, Colorado

John S. Calkins, B. S., Farmer.................Harris, Colorado

3.

1892.

Charles W. Beach, B. S., (B. S., University of Illinois, 1894) Assistant Engineer, Great Plains Storage and Irrigation Company......................Las Animas, Colorado

Frank Beach, B. S., (M. S., 1896) Superintendent San Luis Valley Experiment Station, 1893-1895; Superintendent New Mexico Experiment Station, Las Vegas, 1895-1896; Professor of Agriculture and Irrigation Engineering, Montana State Agricultural College, 1896-1898........ ....Las Animas, Colorado

Alice Bell, B. S., (Mrs. S. L. Boothroyd)......Flagstaff, Arizona

Samuel Bell, B. S., (M. D., University of Denver, 1896) Resident Physician, St. Luke's Hospital, 1897........... ....Denver, Colorado

Don A. Carpenter, B. S., Traveling Salesman, Mines and Smelter Supply Co......................Denver, Colorado

Porter J. Preston, B. S., Assistant State Engineer, Colorado, 1893-1896; Assistant Engineer Great Plains Storage and Irrigation Company; Superintendent Fort Lyons Canal.............................Las Animas, Colorado

Albert J. Sedgwick, B. S., Residence unknown.

Lewis L. Stimson, B. S., County Surveyor of Weld County, 1895-1897; City Engineer................Greeley, Colorado

Frank H. Thompson, B. S., Stenographer, State Agricultural College of Colorado..................Fort Collins, Colorado

9.

1893.

John D. Bloomfield, B. S., Superintendent and Manager Phyllis Canal..............................Nampa, Idaho

Samuel L. Boothroyd, B. S., Professor of Astronomy and Mathematics, Mount Morris College, Illinois, 1893-1897; Assistant Astronomer, Lowell Observatory...Flagstaff, Arizona

Ida M. Lewis, B. S., (Mrs. T. J. Douglass) deceased...Timnath, Colorado

Charles J. Gilkison, B. S., Commercial Student, State Agricultural College.....................Fort Collins, Colorado

William J. Ralph, B. S., Deputy Post-Master...Fort Collins, Colorado

Raymond F. Walter, B. S., County Surveyor of Weld County, Surveyor and Engineer...Greeley and Fort Morgan, Colorado

William W. Willard, B. S., Merchant............Ibex, Colorado

7.

1894.

Philo K. Blinn, B. S., Superintendent Arkansas Valley Experiment Station, 1895-1897; Horticulturist...Rocky Ford, Colorado

Jacob H. Cowen, B. S., Assistant Botanist and Horticulturist, State Agricultural College of Colorado, 1895-1898; Post-Graduate Student, Cornell University...Ithaca, New York

Will H. Fairfield, B. S., (M. S., 1898) Farm Superintendent, University of Wyoming...............Laramie, Wyoming

Minnie F. Harrington, B. S., (Mrs. W. F. Gilkison)...Laramie, Wyoming

Herbert S. Kendall, B. S., Superintendent of Experiment Station, Lander, Wyoming, 1894-1896...Fort Collins, Colorado

Celia May Southworth, B. S., (Mrs. Frank Beach) Librarian, State Agricultural College of Colorado, 1891-1895.......................................Las Animas, Colorado

Harlan Thomas, B. S., Member The State Board of Agriculture of Colorado, 1899; Architect, McPhee Building.. ....Denver, Colorado

7.

1895.

Jean B. Balcomb, B. S., Deputy Mineral Surveyor, Mining Engineer and Surveyor, Almira Mining and Milling Company........................Red Mountain, Colorado

Herbert A. Black, B. S., Lumber dealer....Fort Collins, Colorado

Edith G. Boothroyd, B. S., Teacher...........Arkins, Colorado

Henry A. Calkins, B. S., Assistant Engineer, Mollie Gibson Mine, 1896; Medical Student............Denver, Colorado

Edward P. Cooke, B. S., Iowa Representative Franklin Square Bible House.................................. ....702 Observatory Building, Des Moines, Iowa

Loren B. Curtis, B. S., Engineer and Assayer.............. ....1727 Champa St., Denver, Colorado

William F. Gilkison, B. S., (M. E., 1898) Professor of Mechanical Engineering, University of Wyoming......... ....Laramie, Wyoming

Ella G. Goldsborough, B. S., Stenographer..Fort Collins, Colorado

Seth C. Lewis, B. S., Farmer...............Timnath, Colorado

Edgar A. Mead, B. S., Sergeant Company D, 1st Colorado U. S. Volunteers.................Manila, Philippine Islands

George W. Nelson, B. S., Assistant Superintendent, Olive Mining Company......................Grand Forks, B. C.

Frances C. Schelt, B. S., Teacher..........Fort Collins, Colorado

Walter K. Starbird, B. S., Stockman.........Denver, Colorado

13.

1896.

Fred Alford, B. S., Assistant Chemist, State Agricultural College of Colorado, 1897— ....Fort Collins, Colorado

Henry F. Alps, B. S., Observer, United States Weather Bureau.................................Nashville, Tennessee

William E. Becker, B. S., Letter Carrier.....Dowagiac, Michigan

Florence J. Boothroyd, B. S., Teacher.........Arkins, Colorado

Alfred H. Bungardt, B. S.................Kansas City, Missouri

Allen P. Greenacre, B. S., Instructor, Department Mechanical Engineering, State Agricultural College of Colorado, 1897— ....Fort Collins, Colorado

Robinson W. Hawley, B. S., Assistant Engineer, Western Homestead Irrigation Company, New Mexico, 1896-1897; Assistant, Department Civil Engineering, State Agricultural College of Colorado, 1898— ....Fort Collins, Colorado

John E. Kiteley, B. S., Assistant Chemist, State Agricultural College of Colorado, 1896-1898; Farmer......... ....Longmont, Colorado

Richard A. Maxfield, B. S., Sergeant, U. S. Volunteer Engineer Corps............................Honolulu, Hawaii

Abner S. McKee, B. S., Manager Delta County Telephone Company..............................Paonia, Colorado

Grafton S. Norman, B. S., Second Lieut., 8th U. S. Infantry, ...Hamilton, Ohio

Robert W. Sears, B. S., Stockman and Merchant........... ....Greenhorn, Colorado

12.

1897.

May A. Dievendorf, B. S., (Mrs. Frank Miller)............ ....Fort Collins, Colorado

Bertram A. Gage, B. S., Stockman.........Fort Collins, Colorado

Martha R. Gilkison, B. S., (Mrs. Frank Woods)........... ....Fort Collins, Colorado

Robert S. Gray, B. S., Teacher............Fort Collins, Colorado

Archie J. Harris, B. S., Second Lieut., 2d U. S. Infantry.... ....Cienfuegos, Cuba

Ralph H. Hess, B. S., Instructor Department Mathematics, State Agricultural College of Colorado, 1899— ....Fort Collins, Colorado

Alta E. Lewis, B. S., Teacher............College Springs, Iowa

Smith D. Philip, B. S., Stockman and Farmer............. ....Fort Lupton, Colorado

Anna L. Picken, B. S., Clerk..............Fort Collins, Colorado

Mary E. Prendergast, B. S., Clerk........Fort Collins, Colorado

David J. Richards, B. S., Student of Medicine...Denver, Colorado

11.

1898.

Emil Affolter, B. S., Farmer................Longmont, Colorado

Herman O. Brown, B. S., Meat dealer..........Salida, Colorado

Raymond C. Calloway, B. S., Clerk........Fort Collins, Colorado

William A. Dickens, B. S., Farmer.........Longmont, Colorado

Jesse W. Goodwin, B. S., Farmer...........Estes Park, Colorado
Fred S. Hotchkiss, B. S., Farmer and Engineer...Hotchkiss, Colorado
Amos Jones, B. S., Engineer, Crystal Lake Railroad...Brookside, Colorado
Herbert C. Matthews, B. S., Machinist......Cheyenne, Wyoming
Bernard J. Prendergast, B. S., Farmer....Fort Collins, Colorado
Linnie M. Rutledge, B. S., Journalist...............Ely, Nevada
Charles E. Swann, B. S., Assistant Engineer, U. P. Coal Company..........................Rock Springs, Wyoming
Melvin D. Williams, B. S., Engineer, West Gallatin Irrigation Company........................Manhattan, Montana
Thomas J. Warren, B. S., Draftsman, Denver Engineering Works..................................Denver, Colorado

13.

COMMERCIAL COURSE, 1898.

Charles L. Arnell, Bookkeeper...............Alamosa, Colorado
William A. Doty, Bookkeeper...1602 Blake St., Denver, Colorado
Frank L. Garnick, Mechanic..............Fort Collins, Colorado
Richard E. Hammond....................Fort Collins, Colorado
Agnes L. Hawley, Stenographer and Clerk.......................................Las Vegas Hot Springs, New Mexico
Pearl Hays, Instructor in Stenography and Typewriting, Kentucky Female Orphan School........Midway, Kentucky
Julius P. Oleson, Clerk and Bookkeeper.....Leadville, Colorado
Inez Smith, Stenographer....................Denver, Colorado
Bessie C. Wood, Stenographer..................Eaton, Colorado

9.

OFFICERS OF THE ALUMNI ASSOCIATION.

President.......................Frank H. Thompson.
Vice-President......................John S. Calkins.
Secretary..........................May D. Miller.
Treasurer.......................Newton C. Garbutt.

COURSES OF STUDY.

PREPARATORY YEAR.

FIRST TERM.

American Prose	Swinton
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

SECOND TERM.

English Prose	Swinton
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

THIRD TERM.

American and English Verse	Selections
English Analysis and Composition	Reed and Kellogg
United States History	Montgomery
Arithmetic	Wentworth
Geography	Frye
Penmanship	Eclectic System

Freehand Drawing.

Military Drill and Physical Culture Daily.

SUB-FRESHMAN YEAR.

FIRST TERM.

Algebra	Wentworth
Lessons in English	Lockwood
Civil Government	Townsend

Drawing.

Afternoons: Farm, ⅔; Shop, ⅓.
Domestic Science.

SECOND TERM.

Algebra	Wentworth
American Literature	Hawthorne and Lemmon
Lessons in English	Lockwood

Drawing.

Afternoons: Shop.
Domestic Science.

THIRD TERM.

Algebra	Wentworth
American Literature	Hawthorne and Lemmon
Lessons in English	Lockwood

Drawing.

Afternoons: Shop, ⅓; Garden, ⅔.
Domestic Science.

Military Drill and Physical Culture Daily.

FRESHMAN YEAR.

FIRST TERM.

Geometry	Beman and Smith
Agriculture *or* Carpentry and Joinery	Gulley *or* Goss
Botany	Gray
General History	Sheldon

Afternoons:
Garden. $\frac{2}{3}$; Shop. $\frac{1}{3}$.
Domestic Science.

SECOND TERM.

Geometry	Beman and Smith
Rhetoric and Rhetorical Analysis	Genung
General History	Sheldon

Drawing.

Afternoons:
Shop.
Domestic Science.

THIRD TERM.

Solid Geometry	Beman and Smith
Botany	Gray
Rhetoric and Rhetorical Analysis	Genung

Mechanical Drawing.

Afternoons:
Shop. $\frac{1}{3}$; Farm. $\frac{2}{3}$.
Domestic Science.

Military Drill and Physical Culture Daily.

The course from this point is separated into:

1. The Agricultural—A.
2. The Mechanical Engineering—M.
3. The Civil and Irrigation Engineering—C.
4. The Ladies'—L.

All lead to the degree of Bachelor of Science.

SOPHOMORE YEAR.

FIRST TERM.

Algebra	Wentworth
Literature	Kellogg
Physiology	Martin

Drawing.

Afternoons: Shop, A., C., M.
Domestic Science.

SECOND TERM.

Trigonometry	Wentworth
Physiology	Martin
Physics	Deschanel
Farm Buildings, A.	Lectures
Household Hygiene, L.	Public Health Essays
Descriptive Geometry, C., M.	Faunce

Afternoons: Physiological Laboratory, ½.
Physical Laboratory, ½.

THIRD TERM.

Physics	Deschanel
Surveying, A., C., M.	Raymond
Domestic Science, L.	Lectures
Stock Breeding, A.	Warfield
Algebra	Wentworth
Psychology, L.	Halleck
Descriptive Geometry, C., M.	Faunce

Afternoons: Surveying, A., C., M., ½.
Dairying, L., ½.

Physical Laboratory, A., C., M., L., ½.

Military Drill and Physical Culture Daily.

Rhetorical work for all students one hour per week.

AGRICULTURAL COURSE.

JUNIOR YEAR—FIRST TERM.

Stock Feeding	Stewart
Horticulture	Lectures
Physics	Deschanel
Landscape Gardening, ½	Lectures
Meteorology, ½	Waldo

Afternoons: Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Physiological Botany	Strasburger
Elementary Geology	Tarr
Zoölogy	Orton
Zoölogical Laboratory.	

Afternoons: Botanical Laboratory.

THIRD TERM.

Recent History	McCarthy and Library
Entomology	J. B. Smith
Systematic Geology	Dana
Irrigation Hydraulics	Lectures

Afternoons: Entomological Laboratory, ⅖.
Farm, ⅗.

Military Drill daily. Rhetorical work one hour per week throughout the course.

AGRICULTURAL COURSE.

SENIOR YEAR—FIRST TERM.

Chemistry	Remsen
Dairying	Gurler
Literature	Hawthorne and Lemmon
Constitution of the United States	Andrews

Afternoons: Dairying, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Horticulture	Lectures
Agriculture	Lectures
Logic	Gregory

Afternoons: Chemical Laboratory.

THIRD TERM.

Agricultural Chemistry	Johnson—Aikman
Political Economy	Walker
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons: Chemical Laboratory, ½.
Garden, ½.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Foundry Practice	West
Boilers	Wilson
Physics	Deschanel
Higher Algebra	Wentworth

Afternoons: Physical Laboratory, ⅗.
Shop, ⅖.

SECOND TERM.

Logic	Gregory
Elementary Geology	Tarr
Analytic Geometry	Wentworth
Drawing	Instrumental

Afternoons: Shop.

THIRD TERM.

Drawing	Instrumental
Calculus	Taylor
Principles of Mechanism	Stahl and Woods
Workshop Appliances	Rose

Afternoons: Shop.

Military Drill daily. Rhetorical work one hour per week throughout the course.

MECHANICAL ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Drawing	Instrumental
Calculus	Taylor
Chemistry	Remsen
Steam Engine	Holmes

Afternoons: Shop, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Drawing	Instrumental
Strength of Materials	Merriman
Transmission of Power	Lectures

Afternoons: Chemical Laboratory, ⅗.
Testing Materials, ⅖.

THIRD TERM.

Steam Engineering	Lectures
Special Machines	Lectures
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Steam Engineering Laboratory.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

JUNIOR YEAR—FIRST TERM.

Irrigation Engineering	Wilson and Flynn
Physics	Deschanel
Higher Algebra	Wentworth
Horticulture	Lectures

Afternoons: Physical Laboratory, $\frac{3}{5}$.
Horticulture, $\frac{2}{5}$.

SECOND TERM.

Higher Surveying	Johnson
Analytic Geometry	Wentworth
Elementary Geology	Tarr
Drawing	Instrumental

Afternoons: Field and Laboratory work in Engineering.

THIRD TERM.

Irrigation Hydraulics	Lectures
Calculus	Taylor
Map and Topographical Drawing	———

Afternoons: Field Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

CIVIL AND IRRIGATION ENGINEERING COURSE.

SENIOR YEAR—FIRST TERM.

Calculus	Taylor
Chemistry	Remsen
Constitution of the United States	Andrews
Reservoirs and Dams, ½	Lectures
Meteorology, ½	Waldo

Afternoons: Engineering, ⅖.
Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Materials of Engineering	Merriman
Logic	Gregory
Drawing	Instrumental

Afternoons: Chemical Laboratory, ⅗.
Testing of Materials, ⅖.

THIRD TERM.

Hydraulics	Lectures
Trusses and Bridges	Merriman
Political Economy	Walker
Recent History	Wilson and Library

Afternoons: Engineering.

Military Drill daily. Rhetorical work one hour per week throughout the course.

LADIES' COURSE.

JUNIOR YEAR—FIRST TERM.

Domestic Science, Chemistry of Cooking	Richards
Landscape Gardening, ½	Lectures
Meteorology, ½	Waldo
Physics	Deschanel
Horticulture	Lectures

Afternoons: { Physical Laboratory, ⅗.
Horticultural Laboratory, ⅖.

SECOND TERM.

Domestic Science, Science of Nutrition	Atkinson
Elementary Geology	Tarr
Zoölogy	Orton
Zoölogical Laboratory	————

Afternoons: Domestic Science.

THIRD TERM.

Domestic Science, Home Nursing	Weeks
Geology	Dana
Recent History	McCarthy and Library
Entomology	J. B. Smith

Afternoons: { Domestic Science.
Latin (Elective).
German (Elective).

LADIES' COURSE.

SENIOR YEAR—FIRST TERM.

Constitution of the United States	Andrews
Ethics	Mackenzie
Chemistry	Remsen
Literature	Hawthorne and Lemmon

Afternoons:
- Library in Literature, ⅖.
- Chemical Laboratory, ⅗.

SECOND TERM.

Chemistry	Remsen
Sociology	Small and Vincent
Logic	Gregory
Philosophy of History	Andrews

Afternoons: Chemical Laboratory.

THIRD TERM.

Political Economy	Walker
Chemistry of Common Life	Johnston
Recent History	Wilson and Library
Sociology	Small and Vincent

Afternoons:
- Sociology, ½.
- Recent History, ½.
- Latin (Elective).
- German (Elective).

COMMERCIAL DEPARTMENT.

JUNIOR YEAR—FIRST TERM.

General History	Sheldon
Plane Geometry	Beman and Smith
Elementary Bookkeeping	Sadler
Commercial Arithmetic and Rapid Calculation	Sadler

Spelling and Penmanship.

SECOND TERM.

General History	Sheldon
Plane Geometry	Beman and Smith
Rhetoric and Rhetorical Analysis	Genung
Advanced Bookkeeping	Sadler
Commercial Arithmetic and Rapid Calculation	Sadler

Spelling and Penmanship.

THIRD TERM.

Rhetoric and Rhetorical Analysis	Genung
Solid Geometry	Beman and Smith
Commercial Arithmetic and Rapid Calculation	Sadler
Business Practice and Banking	———

Penmanship and Business Correspondence.

COMMERCIAL DEPARTMENT.

SENIOR YEAR—FIRST TERM.

Literature	Kellogg
Constitution of the United States	Andrews
Stenography	Scott-Browne
Business Geography	————

Typewriting.

SECOND TERM.

Logic	Gregory
Sociology	Small and Vincent
Stenography	Scott-Browne
Business Law	Musselman

Typewriting.

THIRD TERM.

Political Economy	Walker
Sociology	Small and Vincent
Stenography	Scott-Browne
Business Law	Musselman

Typewriting and Office Practice.

SCHEDULE FOR THE FALL TERM, 1899.

Time.	Preparatory.	Sub-Freshman.	Freshman.	Sophomore.	Junior.	Senior.
8:00	Grammar.	Civil Governm't.	Agriculture or Carpentry and Joinery. Geometry.	Mechanical Drawing.	Landscape Gardening, ½. Meteorology, ½. Higher Algebra.	Reservoirs and Dams, ½. Meteorology, ½. Ethics. *Stenography.* Mechanical Drawing.
8:45	Geography.	Lessons in English.	Botany. General History.	Algebra.	Irrigation Engineering. Boilers. Domestic Science. Stock Feeding.	United States Constitution.
9:30	American Classics.	Freehand Drawing.	Geometry. Botany.	Literature.	Physics. *Com'l Arithmetic.*	Calculus. Literature.
10:15	Arithmetic.	Algebra.	General History. Agriculture or Carpentry and Joinery.	Physiology.	Horticulture. Foundry Practice. *Spelling.*	Chemistry. *Business Geography.*
11:05	General Assembly.					
11:20	Military Drill and *Commercial Arithmetic.*					
1:30 or 3:30	U. S. History. Writing or Drawing. Spelling.	Farm, 2-3. Shop, 1-3. Domestic Science	Garden, 2-3. Shop, 1-3. Domestic Science.	Shop. Domestic Science.	*Penmanship.* *Bookkeeping.* Physical Laboratory, 3-5. Horticultural Laboratory, 2-5. Shop, 2-5.	*Stenography.* *Typewriting.* Dairying. Dairying, 2-5. Engineering, 2-5. Shop, 2-5. Chemical Laboratory, 3-5. Library in Literature, 2-5.

Subjects in Italics belong to the Commercial Department exclusively.
Classes in Latin and German in afternoon.

SCHEDULE FOR THE WINTER TERM, 1899-1900.

<table>
<tr><th>Time.</th><th>Preparatory.</th><th>Sub-Freshman.</th><th>Freshman.</th><th>Sophomore.</th><th>Junior.</th><th>Senior.</th></tr>
<tr><td rowspan="2">8:00</td><td rowspan="2">Grammar.</td><td rowspan="2">American Literature.</td><td rowspan="2">Geometry.</td><td rowspan="2">Farm Buildings.
Household Hyg'ne.
Descriptive Geom.</td><td colspan="2">Logic.</td></tr>
<tr><td><i>Com'l Arithmetic.</i>
Higher Surveying.
Zoology.</td><td>Transmission of Power.</td></tr>
<tr><td>8:45</td><td>Geography.</td><td>Lessons in English.</td><td>Drawing.</td><td>Physics.</td><td>An. Geometry.
Zoological Lab'ry.
<i>Bus. Correspondence.</i></td><td>Chemistry.
<i>Stenography.</i></td></tr>
<tr><td>9:30</td><td>English Classics.</td><td>Algebra.
Freehand Drawing.</td><td>Rhetoric.</td><td>Trigonometry.</td><td>Geology.</td><td>Horticulture.
Strength of Materials.
Materials of Engineering.
Philosophy of History.
<i>Commercial Law.</i></td></tr>
<tr><td rowspan="2">10:15</td><td rowspan="2">Arithmetic.</td><td rowspan="2">Freehand Drawing.
Algebra.</td><td rowspan="2">General History.
Geometry.</td><td rowspan="2">Physiology.</td><td>Domestic Science.</td><td>Sociology.
Agriculture.</td></tr>
<tr><td colspan="2">Drawing.</td></tr>
<tr><td>11:05</td><td colspan="6">General Assembly in Chapel.</td></tr>
<tr><td>11:20</td><td colspan="6">Military Drill.
<i>Commercial Arithmetic for Ladies.</i></td></tr>
<tr><td>1:30 to 5:30</td><td>U. S. History.
Arithmetic.
Spelling.
Writing.</td><td>Shop.
Sewing.</td><td>Shop.
Sewing.</td><td>Physiological Laboratory, ½.
Physical Laboratory, ½.</td><td>Physiological Botany
Botanical Lab'ry.
Shop.
Engineering.
Cooking.
<i>Adv. Bookkeeping.</i>
<i>Penmanship.</i></td><td><i>Stenography and Typewriting.</i>
Chemical Laboratory, 3-5.
Testing Materials, 2-5.</td></tr>
</table>

Subjects in Italics belong to the Commercial Department exclusively.
Classes in Latin and German in afternoon.

SCHEDULE FOR THE SPRING TERM, 1900.

Time.	Preparatory.	Sub-Freshman.	Freshman.	Sophomore.	Junior.	Senior.
8:00	Grammar.	Algebra. Drawing.	Rhetoric. Drawing.	Physics.	Recent History.	
					Calculus.	*Stenography.* Sociology (Saturdays).
8:45	Geography.	Lessons in English.	Geometry. Botany.	Agriculture. Algebra.	Home Nursing.	
					Hydraulics.	
					Special Machines.	Steam Engine Indicator.
9:30	Classics.	American Literature.	Botany. Geometry.	Surveying.	Principles of Mechanism. Drawing, C. E. *Com'l Arithmetic.* Geology.	Political Economy,
10:15	Prose. Composition.	Algebra. Freehand Drawing.	Drawing. Rhetoric.	Descriptive Geom. Domestic Science.	Drawing, C. E. Drawing, M. E. Entomology. *Spelling.*	*Business Law.* Agricultural Chemistry. Steam Engineering. Trusses and Bridges.
11:05	General Assembly in Chapel.					
11:20	Military Science, *Commercial Arithmetic*, Chemistry of Common Life.					
1:30	Arithmetic. Spelling. U. S. History.	Shop, ⅓. Garden, ⅔.	Shop, ⅓. Farm, ⅔. Domestic Science.	Physical Lab'y, ½. Surveying, ½. Dairying, ½.	Entomology, 2-5. Farm, 3-5. Shop. Civil Engineering. *Penmanship.*	Chemical Laboratory, ½. Garden, ½. Steam Engineer'g Lab'y. Civil Engineering. Recent Hist'y Library, ½.
3:30	Arithmetic. Spelling.	Domestic Science	Shop, ⅓. Farm, ⅔.	Physical Lab'y, ½. Surveying, ½.	Shop. Sewing. Business Practice.	Steam Engineer'g Lab'y. Domestic Science. *Sten. and Typewriting.* Office Practice.

Subjects in Italics belong to the Commercial Department. *Recitations in German and Latin in afternoon.*

DEPARTMENTS OF INSTRUCTION.

Departments of Instruction.

AGRICULTURE.

By means of intelligent experimental work, conducted on the College Farm and at the Experiment Station, in which student labor is given a prominent place, a very practical training is given.

The authorities are making every effort to provide a thorough course of instruction, in the School of Agriculture, designed especially to educate the students for agricultural pursuits and scientific investigations.

Special agricultural work is begun in the Fall term of the Freshman year. In the Sophomore year, farm buildings and farm roads receive attention. In the Spring term of this year, the young men receive instruction in stock-breeding and the ladies take work in dairying.

In the third term of the Junior year, there is further instruction in regard to soils and practical irrigation. Part of the Junior and part of the Senior year are given to the subject of live stock in its various branches; the care and feeding of horses, cattle, sheep, and hogs; the preparation of food, ensilage, soiling, etc.

Dairying is taught, the first term of the Senior year, by means of lectures and recitations in the forenoon. The exercises of the afternoon relate to butter making, milk testing, and the handling of dairy apparatus.

In the third term of the Senior year, the students take up the general subject of Agricultural Chemistry, with special reference to the fertilization and cultivation of crops.

The whole course is illustrated by the experimental work, always in progress, and is supplemented by daily practical work on the farm and in the laboratory.

The four-year Agricultural Course is designed to give to the student a thorough knowledge of the principles and practices of Agriculture, and at the same time to provide enough training in other branches of learning to furnish a well-rounded education that shall fit him for the general affairs of life.

BOTANY AND HORTICULTURE.

Botany—The study of Botany begins with the Freshman year. The Fall term is devoted mainly to Structural Botany. The plant as an individual is studied as to its parts or organs—the relation each part bears to the whole—the variations in the parts, and the uses they serve. Roots, branches, buds, leaves, flowers, and fruits are placed in the students' hands, and the technical descriptive terms are learned by applying them directly to the plants.

Gray's *Lessons* is used as text to supplement the instruction from the plants themselves. A few lectures on classification and the relations of plants to each other are given toward the close of the term.

The Spring term of the same year is devoted to Systematic Botany. Dissecting microscopes and necessary tools are furnished and plants are each day supplied for analysis. Students are taught the application of the principles learned during the first term, so that they may understand the methods of determining the names of plants. The great variety of plants at hand enables the student to become familiar with all the leading natural orders. Written descriptions of the plants analyzed are required. Coulter's *Manual of Rocky Mountain Botany* is the text-book used.

Physiological Botany—In the Winter term of the Junior year, the Agricultural students study vegetable physiology and the minute structure of plants, using as a text-book Strasburger's *Practical Botany.*

Compound microscopes are supplied and the Botanical laboratory is open to members of the class two hours each afternoon.

An herbarium of native and foreign plants and the green-house furnish material for study.

A portion of this term is devoted to Cryptogamic Botany, special attention being given to rusts, smuts, and mildews injurious to plants.

The laboratory is well equipped with books of reference and with all necessary apparatus and reagents.

Horticulture—Instruction in Horticulture is given by lectures. The first course of thirteen weeks, in the Fall term of the Junior year, deals mainly with methods. Under the general head of vegetable-gardening, the principal topics considered are—the best soil and situation for a garden; manner of laying out a garden; irrigation of garden crops; rotation of crops; methods of planting and management; composts and commercial fertilizers; care of tools; construction, management, and uses of hot-beds and cold-frames; harvesting, marketing, and storing vegetables.

Brief historical notes, and full cultural directions, are given concerning all the vegetable plants commonly grown in gardens.

Small fruit culture is next taken up; each kind is considered in detail as to its history, propagation, cultivation, harvesting, marketing, the best varieties, and the diseases to which it is subject.

Then follows a series of lectures upon methods of plant propagation, including a thorough discussion of budding and grafting.

Plants, tools, and other appliances are provided for class-room use in giving practical illustrations of the subject treated.

A portion of this term is devoted to Forestry. Lectures are given on the gathering and preservation of forest-tree seed, the planting of seed, and the care of seedlings; on the value of trees for timber and ornament, for hedges, screens, and shelter belts.

A second course of lectures during the Winter term of the Senior year treats of the theory of Horticulture, and considers in detail the underlying principles of garden practice; lectures are given upon the history of cultivated plants, variation of plants under cultivation, as influenced by climate, latitude, altitude, and general surroundings; cross-fertilization and hybridization. Pomology is then taken up, and the theory and practice of orchard management considered in detail.

Floriculture is also treated on such topics as the construction, heating, and management of green-houses, the propagation, cultivation, and management of green-house plants for commercial or private purposes.

Landscape Gardening—One-half of the Fall term of the Junior year is allotted to this study. The general principles of the art are taught by lectures and practical instruction given in the selection and laying out of city and country places. The principal topics are, the selection of a place, the location of buildings, drives, and walks, what to plant and how to plant. The works of Downing and Kemp are used as books of reference.

ZOOLOGY AND ENTOMOLOGY.

Physiology—This subject is taught during the first and second terms of the Sophomore year, Martin's *Human Body* being used as a text-book. Aside from the daily recitations, students spend two hours a day, during the first half of the second term, in the laboratory, to study human and comparative osteology and histology, and to dissect anaesthetized animals for the purpose of making a careful study of the various organs and tissues.

The laboratory is well-equipped, possessing, among other things, a fine series of mounted skeletons, an expensive manikin (a life-sized model of the human body so dissected as to show nearly every tissue and organ that can be seen in an actual dissection) enlarged *papier mache* models of the eye, ear, brain, and other important parts; also, compound and dissecting microscopes, microtomes, and dissecting instruments.

Zoology—Zoölogy is taught in the second term of the Junior year in the Agricultural Course and the Ladies' Course. This branch of natural science is taught by means of a text-book and actual demonstrations in the laboratory. Each student is furnished with typical forms of the different branches of the animal kingdom, which he studies carefully, making drawings and taking notes. In this manner the student acquires a practical knowledge of the structure and classifications of animals, that he can not obtain by mere study of books.

Microscopes, dissecting tools, and all necessary equipment for laboratory work are furnished free, each student being required to care for his own instruments.

Entomology—Work begins in the third term of the Junior year in the Agricultural Course, and is furthered by the use of a text-book with laboratory work. Each student also gets together and classifies a collection of insects representing all the orders.

Particular attention is given to the economic features of this study. Those insects known to be injurious are given special attention, and the students are made familiar with their habits and remedies. Students also prepare the principal insecticide substances and apply them for the destruction of insects.

In connection with this department are a good apiary and honey-house, thoroughly equipped with the most modern appliances, and students so desiring are taught and allowed to put into practice all the manipulations of the apiary.

Students taking this study are required to purchase J. B. Smith's *Economic Entomology*.

CHEMISTRY AND GEOLOGY.

Chemistry—It is the object to give the student an opportunity to acquire a thorough mastery of the elementary principles of chemical science. To attain this object, theory and practice are made to go hand in hand. In the first term of the Senior year the class receives a series of lectures, accompanied by text-book work, upon the general theory of the science, its history and development. In this course of lectures are discussed the subjects of acids, bases and salts, and the principles of chemical philosophy. The natural history, chemical and physical properties of each of the elements are discussed in detail, the whole being illustrated by experiments. While taking this course the student spends two hours each day in the chemical laboratory, repeating the experiments shown in the class-room, and making others which may be suggested, thus familiarizing himself with the various forms of compounds, the marked distinctions between the different classes of salts, the use of chemical nomenclature, and the manipulation of apparatus. Practice in the use of the blow-pipe accompanies this work, and an insight into determinative mineralogy is thus acquired. The use and application of the spectroscope are also taught. The students in the laboratory at the end of the first term, are examined in the text-book and by analysis of *unknown bodies* in the dry way.

In the second term of the Senior year, the Inorganic Chemistry is finished and Organic Chemistry is taken up. The laboratory work continues throughout the term, and the student takes up the tests for the bases and their separation; also the tests for the acids and their separation. The students are examined at the close of the second term by means of unknown bodies, composed of mixtures of the several groups of bases.

In the Agricultural Course, in the third term of the Senior year, the students listen to a course of lectures upon Agricultural Chemistry, in which are discussed

such subjects as the following: Relation of Chemistry to Agriculture, the literature of Agricultural Chemistry, elements of plant growth, their relative abundance and importance, the atmosphere, the soil, fertilizers, etc. Storer's *Agriculture*, Johnson's "*How Crops Grow*" and "*How Crops Feed*" are used as reference books. Laboratory work accompanies the lectures and work in the textbooks. The study of quantitative analysis begins in the gravimetric way, and, after some little practice, students will be directed in any line of special work they may desire.

Keeping in mind the object for which the College is founded, we have so planned our Chemical Course as to prepare the student for the general application of Chemistry to the industrial arts, while seeking thoroughly to ground him in the application of science to agriculture. A chemical laboratory, fitted up with modern appliances, balance-room, foul-gas room, and desks for thirty-six students, is ready for the classes.

Students have access to the following current chemical literature: *Chemical News*, *Analyst*, *Journal of the Chemical Society*, *Journal fur Landwirthschaft*, *Journal of Analytic Chemistry*, and "Fresenius Zeitschrift fur Analyt. Chemie."

Geology—Recognizing the fact that a knowledge of Geology is one of the foundations of agricultural science, the subject receives corresponding attention. In the second term of the Junior year, Elementary Geology and Economic Geology are taught, Tarr's Elementary Geology, and Tarr's Economic Geology of the United States being used. In the third term of the same year Systematic Geology is taught from Dana's *New Text-Book of Geology* and by means of lectures. Frequent visits to the mountains and quarries illustrate the practical application of dip, strike, fault, etc. At the close of the work, the students are required to identify and describe twenty-five rocks or mineral specimens.

CIVIL AND IRRIGATION ENGINEERING.

General Statement—In the last two years of the College course, special training is given to those students selecting the Civil and Irrigation Engineering Course, in the fundamentals of these professions. Land Surveying with field practice is taught in the Sophomore year. In the Junior and Senior years, while the studies designed for general training are continued, special instruction is given in engineering and in establishing the mathematical basis for such work. More than usual attention is given to hydraulics and to engineering applied to irrigation problems. Training is given in water measurement and in the problems relating to irrigation, so as to furnish the students the foundation for service as canal superintendents, water commissioners, etc.

Field work is carried on throughout the course and considerable time is devoted to giving the student familiarity with all the instruments ordinarily used in engineering. A special set of exercises has been prepared designed to give skill in adjusting and using the instruments. The department has a good collection of engineering instruments, including transits, compasses, levels, rods, tapes, current meters, and various other apparatus. In the Hydraulic Laboratory are tanks and scales for measuring and experimenting on the flow of water over weirs and through orifices of various kinds; current meters of various patterns for steam gauging; water registers for studying the flow of water; water motors, etc. The Laboratory is also provided with a Fairbanks Cement Tester for testing the strength of cement, and a Testing Machine capable of making tests, transverse, tensile, and compressive, up to a limit of 50,000 pounds.

There is also available, belonging to the Department and to the Professor of Civil Engineering, collections of photographs and plans of engineering and irrigation structures in Colorado and other states of the Union, as well as in Spain, Italy, France, Algeria, Egypt, India, and Australia. In the present condition of Irrigation Engineering these collections are especially useful.

Irrigation Engineering—In addition to the bearing which much of the work has upon this subject, some time is given particularly to the study of canal and reservoir engineering, construction of diversion dams, the duty of water, canal management, flumes and fluming, weirs, problems in canal maintenance, etc. The location of the College in the midst of one of the best irrigated valleys in the United States, with its large and well constructed canals and storage reservoirs, gives excellent opportunities for this study. A large number of photographs and plans of irrigation works has been collected and is in constant use.

The Materials of Engineering—One term in the Senior year is given to the theory of the resistance of materials and to the study of the different materials commonly used in engineering construction, including brick, stone, wood, iron, and steel. Exercises with testing-machine familiarize students with the peculiarities of these materials.

Surveying—The principles of Land Surveying are taught in the last term of the Sophomore year. While instruction therein is given to the students in all courses, it is intended to cover the ground with sufficient thoroughness that the students in the Civil Engineering Course will not need to traverse any of the same ground again. The course includes a study of the operations of surveying; the adjustments of the instruments used by the surveyor; surveying with picket, chain, and compass; and leveling. Considerable attention is given to the methods of the Government Surveys, the finding of corners, and platting. Field work is required of each student for six weeks, two hours daily, in which exercises are given in chaining, measurement of angles with the chain and with the compass, compass surveying, and leveling. Attempt is made to teach the student to be careful and accurate, and to give him the confidence that comes with correct work. The student is required to check his work, and the exercises are so planned that many exercises check the results of others. When possible, a short time is given to a discussion of the measurement of water and the hydraulic laws relating thereto—knowledge useful to every citizen of an irrigated country and expected of every surveyor. A more extended training in this line is given in the later years of the course.

Reservoirs and Dams—In view of the present and prospective importance of storage reservoirs in the West, a course of six weeks is given especially to this subject.

The principles of the construction of dams, both earthen and masonry, and the computation of their stability are taught; also, the causes of the failures of dams, illustrated with photographs and lantern views of many dams. The large reservoirs located within a few miles of the College give convenient means for practical illustration.

Agricultural Hydraulics—This course, covering one term, is intended to include a general discussion of irrigation, its history, and the conditions rendering it necessary or profitable; principles of irrigation; laying out of grounds or farms for irrigation; and questions of duty of water, seepage, water rights, canal administration, etc.

The students of the Civil Engineering and Agricultural Courses receive instruction in this subject. The Junior and Senior classes are combined. The work is taken each alternate year.

Trusses and Bridges—The instruction covers the methods of computing the stresses in bridge and roof trusses; the principles involved in the construction of trusses; and their erection, designing, etc. Merriman's *Trusses and Bridges* is used as a text-book.

Meteorology—A six weeks' course of lectures is given in the Fall term. This course includes a discussion of the means of taking observations; methods of exposure of instruments and precautions for taking correct observations; the characteristics of climate; especially the features of the climate of Colorado; barometry and thermometry; influence of the various meteorological elements upon agriculture and plant growth; influence upon health; the study of storm movements from the daily weather charts and telegrams; the laws of storms; characteristics and causes of special storms, as chinooks, northers, hailstorms, tornadoes, and cloudbursts. The College and the Meteorological Section of the Experiment Station possess a complete line of meteorological instruments which are in constant use. These include self-recording thermometers, barometers, rain gauges, sunshine recorders, psychrometers, anemometers, etc. The records from these instruments—together with the results of the meteorological investigations at the College for the time since the Experiment Station was established—and the daily charts of the Weather bureau furnish material for illustration and study in connection with the course.

Physics—Instruction in Physics is given for three terms of the Sophomore and Junior years, the course lasting one complete college year. Laboratory work is carried on two hours daily for one-half of each term. The important sciences of Mechanics, Light, Heat, Sound, and Electricity are studied. Special attention is given to the latter subject, both in the class-room and in the laboratory, in view of its increasing important applications, and as a basis for Electrical Engineering. In the course in laboratory work, the student deals personally with the apparatus described in the text-book, performs experiments for himself, and carries on determinations of the physical constants, or experiments in such ways as will give training and knowledge and greater familiarity with the subjects studied.

The following is a selection from some of the laboratory exercises of the past year:

Exercises in exact measurement with micrometers and spherometers.

Exercises in weighing.

Investigation of the sensibility of the balance.

Testing of the parallelogram of forces experimentally.

Determination of the acceleration of gravitation by the pendulum.

Investigation of the temperature correction of an aneroid barometer.

Comparison of thermometers with standard; testing boiling and melting points.

Measurement of heights by barometer.

Determination of difference of potential.

Construction of a working telephone.

Exercises in electric wiring.

Measurement of internal resistance of batteries.

Determination of battery E. M. F.

Measurement of wire resistance.

Electro-plating.

Determination of densities.

Measurement of candle-power of sources of light.

Determination of focal strength of lenses and mirrors.

MECHANICAL ENGINEERING.

General Statement—This course prepares students for the profession of Mechanical Engineering. It teaches the general principles of engineering and unites theoretical work and practical research. Instruction is imparted by means of text-books, lectures, illustrations, and experiments in testing materials, machines, and motors.

As the course in Mechanical Engineering is, in part, designed to enable the student to solve those problems relating to the generation and transmission of power and its application to machines, much of his time is spent in the drawing-room, workshops, and experimental laboratory. The studies of this course which are in common with other courses are enumerated and described elsewhere in this catalogue; the others are:

Drawing.
Carpentry and joinery; also wood-working machinery.
Pattern making and foundry work.
Forge work.
Machine and vise work in metals.
Principles of mechanism.
Strength of materials.
Boilers.
The steam engine.
Machine design, machinery, and mill work.

Drawing—Free-hand copy and dictation; free-hand model and object drawing; light and shade; geometric problems; orthographic and isometric projections and projection of shadows; development and intersection of surfaces.

Free-hand drawing gives students facility in representing objects clearly upon paper. Free-hand exercises gradually lead up to making sketches of machines and parts of machines which are afterwards reproduced with instruments in the form of working drawings. Much time is spent at the drafting table, in designing machines. In some instances machines are built in the College shops from these designs.

Carpentry and Joinery—The class-room work, by means of text-books and lectures, takes up the study of the cutting edge of various wood-working tools and machinery and the means of keeping them in good order; an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out the work, cutting speed of tools, etc.; the shrinkage and warping of woods and the different modes of sawing into lumber and the various forms and uses of framing and other joints.

Pattern-making and Foundry Work are similarly taught. The most advantageous forms of patterns are discussed with regard to the proper distribution of the metal and the best form for moulding in the foundry, and, in connection, instruction in core-making and the management of the cupola and brass furnace.

Forge Work, etc., is taught by lectures on iron and steel, and especially with reference to their management in the fire and in the processes of tempering, hardening, and annealing.

Machine Work and Vise Work are taught in a similarly thorough and careful manner.

Principles of Mechanism are studied with reference to the combinations of which machines are composed; and the study of designs for the communication of motion by means of gears, belts, links, etc., forms an important feature in this course.

The Department possesses a large number of models necessary for a presentation of the subject. Most of these models were acquired by gift from the makers, or by purchase. In many cases they were constructed by the students from their own designs.

Strength of Materials is considered by examining the physical properties of the various materials used in construction.

Besides the usual tests of beams, columns, and other structural pieces, tests are made of chains, ropes, cables, solid bars, and welded bars of iron; force required to drive various kinds of nails; holding power of nails and screws; and strength of bricks, stones, marble, etc.

Machine Design is taken up for one term, and the students make designs for various machines and appliances.

Boilers—The various forms are carefully studied from the best authors.

The College possesses four steam boilers to which the students have access, as they also have to many boilers owned by outside parties near the College.

The Department has samples, obtained from different sources, of burned and torn sheets from exploded boilers; burned and pitted flues; choked and corroded pipes and fittings; and a large collection of parts of boilers showing conditions incident to boiler management.

The Steam Engine is studied in its various forms in general and in detail. The Department has a pair of indicators and all appliances necessary for complete engine tests.

There are four steam engines at the College which belong to this Department.

The Department also has two first-class steam pumps and an inspirator. These with what has already been named form a desirable equipment for the use of the students.

Three of the steam engines are provided with Prony brakes. There has been added a model to be used in studying the steam engine. It shows the working of a common slide valve, a riding valve, and the Corliss valves under varying conditions. It was made for the Department and enables the students to get a clear conception of the working parts of the steam engine, especially the valve gearing.

Machinery and Mill Work receive attention and methods of arranging shops and machinery are investigated; and the transmission of power for shop purposes is studied.

The shops in connection with the Mechanical Engineering Department are places where principles and operations may be more readily laid hold of and permanently acquired, than any bare demonstration of the classroom could accomplish.

The shop instruction is divided into courses, and in each course are given, in connection with the work, an explanation of the construction of each tool and its manner of acting on the material, the methods of determining how to select materials best suited to different kinds of work, the manner of laying out work, cutting speed of tools, etc.

COURSE OF LABOR.

Bench work in wood	13 weeks
Wood-turning	12 weeks
Pattern-making	12 weeks
Moulding and casting	12 weeks
Iron and steel forging	13 weeks
Machine work in metals	12 weeks
Vise work in metals	12 weeks

BENCH WORK IN WOOD.

This course consists of exercises with the different wood-working bench tools, so arranged in a graded series as to embrace the manipulation of the tools in their various applications.

First—The use of planes in joining, smoothing, and getting the piece out of wind, lining off, and the use of saws in cutting across and with the grain, and keeping to line.

Then follow exercises in making a halved splice, splayed splice, keyed splice, open dovetail mortise and tenon joint, open dovetail joint, blind dovetail joint, lap joint, dowel joint, small newel post and hand-worked rail, panel door, roof truss, box, carpenter's trestle.

Students usually work from drawings. Cases, benches, boxes, foundry flasks, and a variety of other useful articles are made.

Machine Work in Wood—In connection with this course, with the use of tools, will be given the most rapid and economical method of selecting and preparing the wood for the machine. There will be given examples of straight turning; cutting in and squaring off; concave, convex, and compound curves; handles for chisels and other tools; and examples in chuck work in separate and combined pieces.

This work is so planned that much of it, when completed, forms some part of a machine or other product. A five-horse power vertical steam engine complete in all its details, a number of drafting tables, boring bars, gears, vises, bells, and small tools for use in the shops, serve to illustrate the practical use to which shop products are put.

Pattern-making and Foundry Work—After becoming familiar with bench and machine work in wood, an application of both is made by constructing patterns with due regard to shrinkage, draft, and the best method of constructing the pattern so that it causes the least amount of trouble in the foundry. There will be given examples of plain work; core work; pulley work; pipe work; gear work; core boxes, their use and construction.

After the patterns and core boxes have been constructed, they are taken to the foundry-room by the students, where molds and cores are made, and castings are made in iron or brass.

In the foundry, the students are taught how to charge and manage the cupola, each student pouring for himself the hot metal for the molds he has made.

The management of the brass furnace and core oven is also taught.

Castings of iron, brass, and other metals and alloys are made for vises, drafting-tables, dynamos, steam engines, engine lathes, and other things needed.

Forge Work—Students are carried through a series of carefully graded exercises in both iron and steel, working from drawings in each instance. Many pieces are made which are put to a practical use. Lathe, planer, and shaper tools are made by the students in this room; also cold chisels, center punches, smith tools, brass furnace crucible tongs, skimmers, and all bolts, braces, and such other iron and steel work as may be needed.

Machine Work in Metal—The care and management of tools and their construction are taught.

Cutting speed of tools and proper angle of cutting edge for different purposes and different metals; centering and straightening work; straight turning and squaring; boring; making and fitting joints; chuck work; screw cutting, inside and outside; drilling, tapping, and reaming; boring with boring bar and use of center rest; polishing and finishing; hand-tool work.

Practical Mechanics—For those whose time and means are limited, a short course in practical mechanics is provided. This course covers, practically, the work of the Freshman and Sophomore classes.

The work has for its object a systematic and progressive education in the use of tools and materials, combined with as much theoretical knowledge as may be deemed necessary to explain the principles involved. It does not teach special trades, or manufacture salable articles; to do so would require that the student be kept on the kind of work that he could do best, and thus prevent him from acquiring broad and liberal ideas of other methods. So, without teaching any complete trade, the mechanical principles of many are gained. This does not necessarily mean that the student becomes sufficiently expert to compete with the skilled mechanic, but that a knowledge of *how* a tool or machine should be used, and the *manner of laying out work* for it, are thoroughly taught.

Should circumstances be such as to cause the student to enter manufacturing, his ideas have been broadened by his training, and he will more readily grasp anything new that may come up in his business, or, should he take up farming, he will with greater ease be able to understand the mechanical principles and workings of his machinery, and know how to keep it and his buildings in proper repair.

Tool-room System—There is a well-arranged tool-room, fitted up with a check system designed to accustom students to order and neatness and the names of the tools in use.

Theory and Practice—Attention is called to the combination of the theoretical and practical instruction here offered. Thorough and careful instruction is given with, or is supplemented by, the most practical application of the same in all ways. In every instance where it is possible the work of the class-room is supplemented by work in a corresponding laboratory, where the experimental work is performed according to the latest and most approved methods with the best machines and materials. The practical applications of mechanical theories broaden the conceptions of these truths and make them easier to grasp and more easily retained; by studying the construction of machines the abstract mathematical laws are better understood and their significance becomes more evident.

MATHEMATICS.

General Statement—The purpose of the instruction offered by this Department is two-fold: First, to give the student clear and exact ideas of magnitudes and their measurement, the principles underlying the methods used, and the general unity pervading the mathematical sciences, or such of them as he has time to become acquainted with; second, to give him such skill in computation as to enable him to handle easily and satisfactorily the practical problems he is likely to encounter in after life.

Arithmetic is taught the students of the Preparatory class. The year's work is designed to give a thorough review of the principles underlying the fundamental operations, and to give skill in the application of these to the various problems of business arithmetic.

Algebra is begun in the Sub-Freshman year. The first term's work is designed to give the student as clear ideas as possible of the extensions introduced into the fundamental operations of arithmetic by the notation of two sorts of quantities directly opposed in character, and of the conciseness obtained by the use of literal notation; and to give him sufficient skill in the fundamental operations to enable him to solve intelligently, simple equations involving one unknown quantity. Subsequent work during the next two terms acquaints him with factoring, common factors and multiples, fractions, fractional equations, simple equations of several unknown quantities, involution, evolution, theory of radicals, and imaginary expressions. The text-book used is Wentworth's *New School Algebra* and the work of the first year includes everything up to Quadratic Equations.

The subject is again taken up in the Sophomore year and here the student finishes the work in elementary algebra, taking the entire subject of quadratic equations, ratio and proportion, progressions, properties of series, the binomial theorem, logarithms, and as much more as may be possible in the time allowed the subject. During this year the work, as given in Wentworth's *New School Algebra*, is finished.

Geometry is taken up at the beginning of the Freshman year, and in the three terms allotted to the study the student is given a thorough practical acquaintance with the construction of geometrical figures and led to discover for himself as many as possible of the properties of the figures he deals with. He next takes up formal proof and is led to see the logical dependence of the entire subject upon the few axioms and elementary concepts derived directly from experience and is given thorough practice in the mensuration of geometric magnitudes. So far as the time and ability of the student will permit, he is practiced upon original exercises.

Trigonometry is taught in the second term of the Sophomore year. In the time allotted to this branch, the student is given clear ideas of the trigonometrical concepts, shown their connection, and given considerable practice in the practical application of this branch of Mathematics.

Descriptive Geometry—From the wide application of Mathematics in all branches of Engineering, those students electing either of the courses having to do with Engineering, pursue the study of Mathematics throughout the entire course, with the exception of the last two terms of the Senior year.

Descriptive Geometry is taught to those students electing the two courses in Engineering. The second and third terms of the Sophomore year are devoted to this subject. The principles of parallel and central projection, of development, etc., are discussed and illustrated in the solution of a great variety of problems, and many of these are accurately worked out on the draughting-board by each student.

Higher Algebra—The first term of the Junior year is devoted to a brief review of quadratics and radicals, and to the study of the principal algebraic methods usually denoted by the name Higher Algebra. Among the subjects considered are, Series of various sorts; Mathematical Induction and some of its applications, such as the demonstration of the Binomial Formula; the Theory of Equations; and various methods of solution of equations of the third and higher degrees.

Analytic Geometry—The second term of the Junior year is devoted to the study of Analytic Geometry. The student is made acquainted with the method of coördinates, and the connection between algebraic and geometric forms. The fundamental properties of the conic sections are developed, and as much more of the subject as the time permits.

Calculus—The last term of the Junior and the first term of the Senior years are devoted to the study of Differential and Integral Calculus. Taylor's *Elements of Calculus* is used as a text-book, and the study is pursued substantially as the subject is there developed. The notion of limits is, however, made the logical basis upon which the subject is developed.

The department is provided with a set of Schroeder models from Darmstadt, for purposes of illustration in the study of Solid Geometry, and with models of warped surfaces, etc. The collection is being added to from time to time. There is a collection of drawings for use in the study of curves and curve-tracing.

HISTORY, LITERATURE AND GERMAN.

A well-rounded education includes a somewhat thorough knowledge of History and English Literature. These subjects are studied throughout the entire course. United States History is a part of the work of each term of the Preparatory year. Two terms of the same year require some work in English and American Classics. The study of the history of the United States is aided by maps illustrating the periods of maritime discovery, the colonization of the New World, territorial acquisitions, etc.

The course in General History and English Literature is as follows:

SUB=FRESHMAN YEAR.

Second and Third terms—American Literature.

FRESHMAN YEAR.

First term—Ancient History: Greece and Rome.

Second term—Europe from the Invasion of the Northern Barbarians to the present time.

SOPHOMORE YEAR.

First term—English Literature. Readings from Chaucer, Spenser, Shakespeare, Elizabethan prose writers, Milton, Bunyan, Dryden, and later writers.

JUNIOR YEAR.

Third term—Recent History of America, A., L.

SENIOR YEAR.

First term—English Literature, L.

Second term—Philosophy of History, L.

Third term—Recent History, A., M., C., L.

Afternoons: Readings in History four hours per week in Library.

Sheldon's *General History* is used as a text-book. The student is taught to reason about historical events and is required to consult books of reference.

Kellogg's *English Literature* is the basis for the study of English Literature. Each historic period and the authors of that period are considered together. Class work also includes lectures.

Members of the Ladies' Course engage in a more extended study in English and American Literature.

Each member of the class reads masterpieces from the greatest English writers, makes comparison between them, and studies style with as much care and thoroughness as possible.

The development of literary taste is the aim of this work. The study of the Philosophy of History includes such subjects as, historical investigations; laws governing human actions; reciprocal influences of religion, literature, and government; comparisons and criticisms of past civilizations; and the elements found in our present European civilization.

A valuable collection of photographs belongs to this Department and illustrates the architecture of the past and present from ruins, and buildings now in existence.

Four cases of historical maps add greatly to the interest in studying history. They include twenty maps from the celebrated presses of W. and A. K. Johnston, Edinburgh, Scotland. These maps illustrate ten periods of European History since the Christian Era, and also include seven maps for the study of Ancient History, and excellent maps for studying United States History.

The College Library is an important factor. Its shelves are well filled with standard literature, and with works of special interest and assistance to the student of history.

German—Opportunities for the study of German will be furnished by this Department. Such work will be elementary or more advanced according to the abilities and needs of students.

ENGLISH AND PHILOSOPHY.

General Statement—The ability to write a clear and an elegant English sentence is an accomplishment much to be desired; and it is upon this one accomplishment that every well-rounded course relies. The aim of the following courses in Rhetoric and English Composition is in general twofold: (1) To train the student in the theory and the practice of English Composition; (2) by the study of the fundamental principles of style to aid him in the intelligent appreciation of literature.

In all the work of the Department of English and Philosophy, the College Library serves as an important and a necessary factor. Although the Library is well supplied with dictionaries, it is regarded as essential for the student to possess a good English dictionary. For this purpose Webster's *Academic Dictionary* is recommended.

Rhetoric and English Composition—The class-room work is divided equally between theory and practice. For this purpose, Lockwood's *Lessons in English* is used as a text-book. Short themes are written every week, criticised by the instructor, and discussed before the class or in consultation with the student. This course extends throughout the Sub-Freshman year.

Rhetoric and Rhetorical Analysis—This course follows the *Rhetoric and English Composition* of the Sub-Freshman year, which is a prerequisite. The text-books used as guides are Genung's *Practical Rhetoric* and the same author's *Handbook of Rhetorical Analysis.* Fortnightly themes of some length are required. During the Winter term's work, topics for the themes are assigned by the instructor; the six themes of the Spring term form a connected paper upon some topic selected by the student. The work is continued throughout the Winter and Spring terms of the Freshman year.

Public Exercises—Each student, above the Freshman year, is required to participate in one public exercise (recitation, declamation, essay, oration, debate, etc.) each term of his college course.

Psychology—The work in psychology is carried on with text-book and recitations and aims to familiarize students with the fundamental psychological principles. Halleck's *Psychology and Psychic Culture* is made the basis of the work. Supplementary reading along the lines of recent investigations is encouraged. This course is given the Spring term of the Sophomore year.

Ethics—The work in ethics bases itself upon the psychological ideas acquired in the previous course, and applies them to the analysis of character, habit, desires, and ideals from an ethical point of view. Mackenzie's *Manual of Ethics* (third edition) is used as a text-book. This course is given the Fall term of the Senior year.

Sociology—This course is designed to afford a synthetic view of social phenomena and to suggest a preliminary way of looking at society. Small and Vincent's *Introduction to the Study of Society* is used as a text, and the method is illustrative throughout. This course is given the Winter and Spring terms of the Senior year.

Latin—Classes in this language are organized at the opening of each college year. All work in Latin is elective. Such work, if satisfactorily done, may be accepted, under Faculty regulation, as a substitute for such regularly scheduled work as may not be regarded as an *essential* part of the specific course upon which the student has entered. The Roman method of pronunciation is in use, and, at present, Bennett's *Latin Grammar* is the basis of instruction.

DOMESTIC SCIENCE.

The work outlined for the Department of Domestic Science covers the preparation which the proper care of the home requires. There are three terms of text-book work, two terms of lectures, and nine terms of practical exercises.

Home Hygiene—This subject is taken up at the beginning of the second term of the Sophomore year.

The text-book used is *Public Health*, a series of prize essays relating to health in the home, healthy foods, school sanitation, disinfection, prevention of disease, etc.

Household Science—Lectures on *Household Science* are given to the ladies of the Sophomore class in the third term of the college year.

Chemistry of Cooking—In the first term of the Junior year the subject considered is the *Chemistry of Cooking*. The practice of cooking can not be carried on successfully without some knowledge of chemical science. The text-book used is the work of Mrs. Ellen H. Richards. The subject, in many of its phases, is considered in the first term of the Junior year. The second term of this year, Atkinson's *Science of Nutrition* is used as a basis for class exercise and lecture work. The bulletins of the United States Department of Agriculture are helpful in this work.

The Sick Room—The work of the third term, Junior year, includes lectures on nursing, emergencies, etc.

Sewing—The afternoon work in sewing consists of drafting patterns, cutting out garments, plain sewing, plain and fancy stitches, embroidery, and millinery. Special attention is given to dressmaking.

The Kitchen—The work in the kitchen laboratory includes the study of foods with practice in all kinds of cooking and laundering.

General Topics—A lecture is given each Friday afternoon on some topic relating to the care of the house, clothing, and person; social duties; customs of good society; and anything that will aid in the development of a perfect womanhood.

POLITICAL ECONOMY AND LOGIC.

Political Economy—The text-book used is Walker's *Political Economy*. Other works of the author, and the writings of the best authorities on economic questions, are within reach of students who visit the Library.

The important questions with which the subject deals are treated without attempt to uphold any narrow, one-sided view. Economic questions of particular importance to the people of the United States are given special prominence in the recitations, discussions, and lectures. These are considered from a historic and an impartial standpoint.

Logic—This study is taught by recitations, discussions, and original exercises. Careful consideration is given to the principles of deductive reasoning. The syllogism is analyzed. The principles and methods underlying scientific investigation are made subjects of study, and the basis of class discussion and essay work. Practical application of what the student learns in the study of Logic is made in testing the validity of arguments and detecting fallacious reasoning.

The history of the science is considered and something learned of the writers whose works thereon have recognized merit. Gregory's *Practical Logic* is the textbook used.

Civil Government—The study of the Constitution of the United States is an important preparation for the duties of citizenship. The subject, as one of the studies of the Senior class, includes some consideration of the political history of the United States. The Constitution of the State of Colorado and the organization of the departments of government in conformity with its provisions are considered in special lectures.

MILITARY SCIENCE.

For instruction in Military Science, the students are formed into companies, and the companies into an Infantry Battalion, properly officered, including a Field Band and Signal Detachment—the whole under the command of an officer of the Regular Army detailed by the War Department.

The system of instruction, being that in use in the Regular Army, is calculated to form the habit of prompt obedience, foster the natural martial instinct, and prepare the student, should necessity arise, to organize a company or battalion of our National Militia.

The infantry drill includes the schools of the soldier, company, and battalion, in close and extended order, advance guard, rear guard, and outpost duty, and such other exercises as time permits.

Artillery instruction is given in the school of the cannoneer, dismounted, as prescribed in the U. S. Army Light Artillery Drill Regulations.

Instruction in Military Signaling, for the rapid transmission of intelligence, is given to a detachment specially chosen for this purpose. The Meyer Code (used by both the Army and Navy) is taught. Messages are sent, in ordinary and in cipher, using either flag or heliograph.

A Field Band of trumpeters, drummers, and fifers is organized from the student body. Whenever practicable, instruction in martial music will be given by a musician detailed for this purpose from some band of the Army.

The Department is equipped with 250 cadet rifles of the same pattern as used at the United States Military Academy, together with the necessary outfit of belts, cartridge-boxes, etc.; two 3-inch rifled field pieces; several flags; and two heliographs (made by the Department of Mechanical Engineering after a model furnished by the War Department), for signaling; the necessary musical instruments for the Field Band; and 12 swords and belts for the use of officers and non-commissioned staff officers of the Battalion.

The practical work, as outlined above, is supplemented by lectures delivered, during unfavorable weather for outdoor work, by the Professor in charge.

Military drill is required of every male student, unless excused by special vote of the Faculty, for physical disability or other satisfactory reason. Each cadet is required to purchase a copy of the U. S. Infantry Drill Regulations for study and reference. Every male student, whether excused from drill, or otherwise, must provide himself with the College uniform, consisting of blouse, pantaloons, cap, and gloves, and must keep the same in good condition. The uniform is neat, durable, and serviceable, and costs, all told, about thirteen dollars. Students are required to be uniformed properly at drill, and at all recitations and exercises during the forenoon.

New students, and students without uniforms, will, on reporting to the Professor of Military Science, be measured by a tailor, and their uniforms immediately ordered. A deposit is required with each suit.

Inspections are held at the end of each month, when the arms, accoutrements, and appearance of each cadet are scrutinized. Each cadet has assigned to him his individual equipment, and must maintain it in good order. He is held responsible, likewise, for unnecessary losses or damages. The period from 11:20 A. M. to 12 M. is allotted, daily, to this Department.

MILITARY ORGANIZATION.

WILLIAM C. DAVIS, FIRST LIEUT. 5TH ARTILLERY, U. S. A.,
Professor of Military Science and Tactics, Commandant.

BATTALION STAFF:

Addison L. Kellogg, *1st Lieutenant and Adjutant.*
Jacob C. Mulder, *1st Lieutenant and Quartermaster.*
Herman Howard, *Sergeant Major.*
Lee R. Cooke, *Quartermaster Sergeant.*
Walter P. Hurley, *Chief Trumpeter.*

COMPANY A.	*COMPANY B.*	*COMPANY C.*
Captain.	*Captain.*	*Captain.*
Harry C. Miller.	Charles S. Newell.	Frank Corbin.
1st Lieutenant.	*1st Lieutenant.*	*1st Lieutenant.*
James A. Stump.	Charles W. Mayers.	William J. Littleton.
2nd Lieutenant.	*2nd Lieutenant.*	*2nd Lieutenant.*
Clifford S. Atherly.	William R. Headden.	Lewis C. Hall.
1st Sergeant.	*1st Sergeant.*	*1st Sergeant.*
Raymond R. Fisk.	Harry A. Boyd.	Aaron V. Benson.
Sergeants.	*Sergeants.*	*Sergeants.*
Robert A. Pierce,	Henry F. Sturdevant,	Edward S. G. Titus,
Alanson R. McCraw,	George A. Smith,	Earl Douglass,
Claude H. Annis,	Stuart B. Garbutt,	Oliver B. Tomlin,
Emmet C. McAnelly.	Howard E. Emigh.	Harry H. Murray.
Corporals.	*Corporals.*	*Corporals.*
Adolph F. Lindon,	Edwin A. Sutton,	Glynn B. Stannard,
Newton W. Matthews,	Jasper Loomis,	Ralph W. Haynes,
Otto W. Lunnon,	James H. Andrews,	F. Guilford Traber,
William F. Marshall,	Herbert C. Galliher,	Thorwald V. Norgaard,
Robt. C. Woods.	Leroy A. Baker.	T. M. Donelson.

Drum Corps.

Albert L. Breniman, Charles W. Kelly, John R. James,
Charles H. Jones, Fred Stearley.

COMMERCIAL COURSE.

By action of The State Board of Agriculture, taken in December, 1895, the College Faculty was instructed so to arrange the curriculum of study as to make adequate provision for a distinct department to be known as "The Commercial Course of The State Agricultural College."

The aim of the course is to meet the wants of those who are seeking a high-grade business education. It trains the student to meet the exacting demands of modern commercial life. The fact is recognized that the market is already overcrowded with young people of limited and imperfect preparation and unable to avail themselves of the opportunities of the business world.

It is not the design of the Commercial Department to fit students for bookkeepers and stenographers in the shortest possible time, but rather to train them in such manner that they may fill positions of the highest order in accounting and general reporting. Experience has clearly shown that persons of limited and imperfect training invariably fall into the lowest class of workers; while those who are well-trained and educated are sought and liberally paid for their services.

The students seeking the benefits of a business education will not only secure them in full measure, but they will also have the advantage of being connected with an institution where superior facilities for all kinds of educational and cultural work exist. The large library, the well-furnished museum, the college associations of all kinds, and all the elaborately equipped laboratories are open to the students of the department and thereby they can round out a training far broader and more liberal than that secured in a school from which such cultural opportunities are almost wholly absent.

THOROUGHNESS.

One of the most important features of the course is thoroughness. Herein lies the secret to success, lucrative positions, and promotion. Business men are willing, and will always be willing, to pay well for competent bookkeepers and stenographers. The successful bookkeeper and stenographer must be an expert. Thorough training is absolutely necessary. The students' work is examined critically and is not credited unless it is up to the required standard.

BOOKKEEPING.

The student is first instructed in the elements and principles of theoretical bookkeeping, both double and single entry. After showing by his work and examinations that he has a clear understanding of what must be learned, the student is promoted to advanced bookkeeping in which he learns to keep books in various lines of business with special and labor-saving books; and from which he enters the actual business practice, is assigned his official desk as a business man, is furnished with a cash capital and merchandise stocks, according to the business in which he is to engage. He receives his blank forms of all kinds of business and commercial paper and then begins business operations. He buys and sells merchandise, makes regular deposits at College National Bank, gives and receives checks, carries on correspondence with different individuals and firms, and finally balances his books daily. The office department is supplied with large books which are kept by the students. The Sadler-Rowe *Budget System* is used as the text in theoretical bookkeeping.

STENOGRAPHY AND TYPEWRITING.

Stenography is taught in a practical and systematic manner. The elements and principles are thoroughly mastered after which carefully-graded practice exercises and easy dictation are given. Students are required to read back their stenographic notes and transcribe the same on the typewriter. Students are afforded opportunities for actual work in the business practice of the office department where a variety of business correspondence is carried on. There are, also, opportunities for reporting.

Typewriting instruction is given throughout the year. Students are taught the mechanism and the uses of the various parts of typewriters. Finger exercises are given for the acquiring of the proper touch and method of manipulating the keyboard. Proper instruction is given how to take care of machines and how to remedy and adjust any derangements. Instruction is given in setting up matter on the typewriter, the correct forms of correspondence, statements of accounts, writing of contracts, legal papers, tabulating work, etc., etc. The Department is supplied with fifteen of the leading standard typewriters. Manifolding, the use of the mimeograph, and the letter-press receive careful attention.

The latest and most approved methods are used in bookkeeping, stenography, typewriting, and penmanship.

EXPENSES.

Tuition is free. All books and stationery for the two years' course need not cost to exceed $25. Board and lodging at from $3 to $4 per week; club board at reduced rates.

ADVANTAGES.

1. Free tuition. 2. Text-books and all stationery sold at cost. 3. Each class in charge of a specialist. 4. First-class office equipments for actual business. 5. The large library, museum, college associations, and laboratories open to students. 6. Military drill. 7. The students, being under the direct influence of the College, receive culture and obtain privileges that can not be equalled by business colleges.

REQUIREMENTS FOR ADMISSION.

Entrance examinations will be held at the opening of the Fall term. Candidates for admission must be at least fifteen years of age, must show that they have sufficient attainments to enable them to carry on the work, and must pass a satisfactory examination in all branches named in the courses for the Preparatory and Sub-Freshman classes. Those who are prepared for the work will receive advanced standing.

DIPLOMA AND CERTIFICATE.

Students who complete the two years' course and sustain the required examinations will receive a diploma.

Those who complete part of the course and pass the required examinations will receive a certificate of proficiency for the branches completed.

Students of this Department are subject to the rules and regulations of the College.

Branches Not Elsewhere Named.

Oratory—This has been defined as the "Art of influencing conduct with the truth sent home by all the resources of the living man."

The study of the Art of Expression is followed in some form throughout the College course. A healthful interest in the subject has been manifested by all the students.

Our public institutions, our form of popular government, great questions of moral and political moment, the almost boundless possibilities within the grasp of individual effort, all tend to increase and intensify the interest in and to emphasize the importance of, this much-needed branch of education.

Few text-books are required in this branch, as copies of the best selections of English prose and verse are furnished the students. This gives a much broader range and scope to the study, and adds an interest to the work not otherwise attained.

"*The Classics*"—The State Agricultural College is not a *classical* school. Its operations are conducted in conformity with the provisions of the statutes of the United States, and the State of Colorado, elsewhere quoted. There is nothing in any law to prohibit instruction in the languages, ancient or modern, in what are termed "Land-grant Colleges." On the contrary, some work in foreign languages is clearly contemplated in the various acts relating to these educational institutions. There has been a demand for more linguistic work than is outlined in the different courses of study now pursued in the College. To meet this demand a competent instructor in Latin and Greek has been employed.

German—The best scientific and technical schools of the country make provision, more or less thorough, for some instruction in German. The students of such schools have great advantage in the prosecution of their work if the scientific and technical knowledge of German authors is accessible to them. Hereafter, the College will offer instruction in German to such students as elect to receive it. This instruction will be given by those who make use of the most approved method of teaching a foreign language.

Public Rhetoricals—Each student enrolled has at least one public rhetorical exercise each College term, unless excused by Faculty vote. These exercises consist of declamations and recitations for the lower classes and original exercises for the advanced students. The importance of these exercises to the student can scarcely be overestimated, as every one should have a training which will enable him to present his views upon any question in public in an intelligent and pleasing manner.

The Library.

The College Library was founded in 1878 by donations from members of the Faculty and interested citizens of Fort Collins, aided by a small purchasing fund derived from the one-fifth mill tax. From this small beginning it has steadily grown in size. Now it contains 11,000 bound volumes besides many thousand pamphlets.

The Library is supported by appropriations made from the "College" and "Annie Jones" funds. The annual sum appropriated will average $1,000. The Faculty Committee on Library is wisely directing the expenditure of this appropriation.

All the books have been selected with great care. The Library contains choice and valuable works on Agriculture; Irrigation, principally by English, French, and Italian authors; Mathematics; Physics; Chemistry; Geology; Botany and Horticulture; Physiology; Zoölogy and Entomology; Mechanics and Engineering; Political Economy; Domestic Science; Science of Education; Military Science; General History; English and American Literature; Music and Art; Translations of the Classics; Biography; Travels; etc., etc., etc.

Sixty-nine periodicals, monthly and weekly, are taken by subscription. The publishers of many Colorado newspapers place the College Library on their *free* mailing list.

The Library is well lighted and adequately furnished. Save the noon hour, students can now enter the Library rooms any week day between the hours of 7 A. M. and 5 P. M. On Sunday the Library is kept open from 1:30 to 4 P. M.

Books may be drawn for a period of two weeks. The Library is catalogued according to the Dewey Decimal System, the author, title, and subject cards being arranged on the dictionary plan, in convenient cabinets, to which the students have free access.

College Organizations.

LITERARY SOCIETIES.

There are three Literary Societies connected with the college—the "Philo-Æsthesian," the "Columbian," and the "Athenæum." Meetings are held weekly throughout the school-year. Students are admitted to these societies by vote of the members. The fees and dues are not burdensome.

"The Philo-Æsthesian Society" meets in the College Chapel. "The object of this Society is to encourage free investigation and to promote growth in literary composition with readiness and fluency of speech."

The Spring term organization was as follows: Addison L. Kellogg, President; Newton M. Fitch, Vice-President; Nellie M. Killgore, Secretary; Cecil G. Philip, Treasurer; Aaron V. Benson, Critic; Edward F. Triplett, Editor "Philo-Æsthesian Expression," and Antoine Jacob, Sergeant-at-Arms.

"The Columbian Literary Society" meets in Horticultural Hall. "This Society is organized to train its members in literary work, to instruct them in parliamentary law, and to promote their growth in general knowledge."

The Spring term organization was as follows: Lewis C. Hall, President; Edward Affolter, Vice-President; Laura Armstrong, Secretary; Earl Douglass, Treasurer, and Frank O. Rasmussen, Critic.

"The Athenæum Literary Society" meets in the lecture room in the Civil Engineering Building. Its purpose is, "to advance the literary culture of its members, give them proficiency in debate, and train them in parliamentary law."

The Spring term organization was as follows: Leroy A. Baker, President; Oro McDermith, Vice-President; Ernest N. Graves, Secretary; Harry E. Aylsworth, Treasurer, and Eunice Chatfield, Critic.

ORATORICAL ASSOCIATION.

This Association was organized in 1892. Its object is to encourage the study and practice of oratory in the College. Students registered in any of the four higher classes may be admitted to membership by vote of the Association.

The officers at the close of the school-year were as follows: Charles S. Newell, President; Aaron V. Benson, Vice-President; Ralph W. Haynes, Secretary; Herbert P. Galliher, Treasurer, and Harry C. Miller, Superintendent of Manuscript.

The Association holds two contests each year; one for the members of the Sophomore and Freshman classes, the other for the members of the Senior and Junior classes.

The last Sophomore-Freshman contest took place in the College Chapel on the evening of February 24, 1899. There were six competitors. Austin Downey, of the Freshman class, won first place and the silver medal. Lenore Gunn, of the Sophomore class, was given second rank.

The subjects and speakers were as follows:

Oliver Hazard Perry as a Naval Hero	Oliver P. Pennock, 1902
What Should We Do With the Philippines?	Richard W. Tanner, 1901
The Power of Individuality	Lenore Gunn, 1901
A Young Man Should Study Politics	Austin Downey, 1902
A Glance at Lincoln	Adelaide S. Bristol, 1902
Monuments	Frank O. Rasmussen, 1901

The Senior-Junior contest—so-called—followed on the evening of February 25. The four contestants were members of the Senior class. James A. Stump was awarded first place and the gold medal. Addison L. Kellogg was given second rank and Marguerite Prendergast received favorable mention. The following was the program of exercises:

The Supremacy of Democracy	Addison L. Kellogg
The Debt of a Nation to Its Navy	James A. Stump
An Invincible Trio	Marguerite Prendergast
War or Peace	Lee R. Cooke

NATURAL SCIENCE CLUB.

This Club was organized by the members of the Faculty and students of the College in March, 1889. The object of the organization is to keep its members informed upon recent advances in science; and especially to interest students in scientific subjects and to encourage them in making original observations. Meetings are held monthly and are open to all who can attend.

The officers of the Club are W. W. Cooke, President; Charles S. Crandall, Vice-President; Elmer D. Ball, Secretary; Glynn B. Stannard, Treasurer; Clarence P. Gillette, Curator of Museum, and Theodosia G. Ammons, Edward B. House and Edward S. G. Titus, Program Committee.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The purpose of the local organization is to promote growth in grace and Christian fellowship among its members. It urges aggressive Christian work particularly by and for students. Above all, it strives to point College students to a higher standard of moral excellence.

The officers in charge at the end of the college year were: Newton M. Fitch, President; Homer P. Curtis, Vice-President, and Alfred H. Ripley, Secretary and

Treasurer. William F. Tucker and Newton M. Fitch represented the Association in the State College Y. M. C. A. Convention, which met in Denver, April 1 and 2, 1899.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

"The object of the Y. W. C. A. is the development of a higher Christian character in its members, and the prosecution of active Christian work among the young women in the College. It seeks to surround the students with an earnest spiritual atmosphere; to minister to their intellectual, moral, and social well-being, and to promote growth in goodness, purity, and truth."

The officers are: Laura Armstrong, President; Oma May Veazey, Vice-President; Myrtle V. Larsen, Corresponding Secretary; Elizabeth M. Kelly, Recording Secretary, and Marguerite E. Stratton, Treasurer.

SAN JUAN BOARDING CLUB.

A student boarding club was organized a few years ago. Accommodations for about forty students are furnished. The price of board ranges from $2.00 to $2.25 per week. The officers of the Club are as follows: Charles S. Newell, President; Aaron V. Benson, Vice-President; Homer P. Curtis, Secretary; George A. Webb, Treasurer; Harry A. Boyd, Steward; Edward Affolter, Senior Auditor; and Ralph W. Haynes, Junior Auditor.

ATHLETIC ASSOCIATION.

This Association was organized in the Fall term of 1894. An improved system of management has lately been inaugurated. The object is to promote the physical well-being of the members and to afford such gymnasium and field practice in athletic games as will enable the chosen representatives to participate with credit in intercollegiate contests.

The Association is officered as follows: Aaron V. Benson, President; Ralph W. Haynes, Vice-President; Clifford S. Atherly, Secretary; William F. Tucker, Treasurer and Manager; Edward Ewing, Sergeant-at-Arms; James A. Stump, Director-at-Large; Walter P. Hurley, Athletic Editor "Collegian;" and Lewis C. Hall, Delegate State Athletic Association.

WASHINGTON'S BIRTHDAY.

Each year an organization of the students is formed for the purpose of properly celebrating Washington's Birthday. The last celebration was held in the College Chapel, Wednesday evening, February 22, 1899.

PROGRAM.

Address by the President of the Day..Robert Ansel Pierce
The Spirit of the Revolution...Graham Fuller, Class 1903
Mount Vernon, the Mecca of America...............
....................Emma B. Nicholson, Class 1902
To the Victor Belong the Spoils.................
......................Homer P. Curtis, Class 1901
Patriotism ....Lottie D. King, Commercial
Heroism.................Harry H. Murray, Class 1900
Music.
College Oration—Champions of Liberty............
.............................Stuart B. Garbutt

ARBOR DAY EXERCISES.

Exercises appropriate to the day were held in the College Chapel, April 21, 1899. Their nature is shown by the following program:

Music—Violin and Piano........................
..............Walter P. Hurley and Ada Livernash
The Beauties of Nature.............Frances M. Warren
Song—Woodman Spare That Tree.........College Choir
Recitation—Bryant's Forest Hymn..Elizabeth A. Nugent

The Need of Economy in the Management of American Forests............................Ray E. McClave
Song—Sweet and Low......................College Choir
Why Do We Celebrate Arbor Day?......Jennie E. McLain
Music—Mandolin and Guitar Club...Lizzie M. Nicholson, Carrie H. Gilbert, Harry H. Gaume and William R. Headden.

COLLEGE PAPER.

In December, 1891, the first number of *The Rocky Mountain Collegian* appeared. Since that date the paper has appeared regularly once a month during the college year. The columns of the *Collegian* are filled with bright, newsy, instructive matter. The paper is a mirror of student life at the College. It is creditably conducted and is worthy the support of every student, alumnus, official and patron of the College.

The editorial staff is as follows: Harry C. Miller, 1899, Editor-in-Chief; Charles S. Newell, 1899, Business Manager; Robert Ansel Pierce, 1900, Advertising Editor; Frances M. Warren, 1900, Local Editor; Lizzie M. Nicholson, Commercial, Literary Editor; Lenore Gunn, 1901, Society Editor; and Harry H. Gaume, 1902, Exchange Editor.

Buildings and Equipments.

Main College Building—College Hall, with its new additon, contains large recitation rooms for the following-named departments: Mathematics; English and Philosophy; History, Literature, and German; Latin and Greek; Political Economy and Logic; and Zoölogy and Entomology. This building also contains commodious Library and reading rooms; Museum and Zoölogical Laboratory; offices for College officers; rooms for The State Board of Agriculture and the Faculty; and a large, well-arranged Assembly Room, with opera chairs for seating 300 persons, and stage, retiring rooms, cloak rooms attached. This building is heated by steam and has electric lighting throughout. The basement contains an Armory 40x72 feet, for drill and gymnastic purposes; the heating plant; office of *The Rocky Mountain Collegian;* special work rooms and laboratories; bath rooms; and rooms for janitor, storage, etc.

The New Chemical Laboratory—The need of a better building for the use of the Chemical Department has long been recognized. The building in which the chemical work of the College and Station was done is one of the oldest on the college grounds. It could not be put in proper shape to meet the present wants of the department.

The new laboratory building is designed after the French Renaissance style of architecture, with the individual grace and picturesque effect of the old French chateaux. It appears in pleasing contrast with the Romanesque structures in the midst of which it is erected. It is constructed of red sandstone rubbed and smoothed. In the interior arrangement, convenience and facility for carrying on efficient chemical analysis are kept in mind.

To the left of the main loggia, on the first floor, is the professor's suite of rooms, including office, balance room, and private laboratory—the latter being provided with hoods and direct communication with a storage room in the basement.

To the right the stairway leads to an entrance on the second floor. Here are the assistant's quarters—office; experiment station, laboratory, with balance room and hoods; storage room; and nitrogen room containing two hoods.

Directly in front of the main entrance to the loggia, is the qualitative laboratory, 30x38 feet, supplied with working desks large enough to accommodate thirty-two students. This room is provided with nine hoods, storage room, and balance room. This room being an inside room, is lighted by a large skylight in the roof—a superior system of lighting when the work to be done is considered.

To the left of this laboratory, and behind the professor's rooms, is the quantitative laboratory arranged to accommodate twelve students. It is furnished with six laboratory desks, two hoods, and a balance room.

All laboratory desks throughout the building are made of quarter-sawed oak tops and butternut sides, drawers, doors, etc. The sinks are placed at the sides of the laboratories. Each desk is provided with gas and water supplies; also a two-inch waste, flush with the top of the desk and supplied with a rubber plug. This waste takes the place of sinks in the desk and eliminates much uncleanness usually connected with the work. The hoods are furnished with gas and water supplies; also with strong draft accelerated by hot-water coils placed in large vent stacks.

The second floor of the building is arranged into two lecture rooms, each about 26x46 feet. The chemistry lecture room is connected with the apparatus room by a large hood, provided with slides on both sides, making the transfer of apparatus rapid and convenient. There is connection, also, with the museum and chemical cabinet. The geology lecture room is connected with microscopical room and the museum. The basement is used principally for storage and heating purposes, gas generation, and some analytical work.

Horticultural Hall—The New Horticultural Hall is located on the north side of the campus, facing Laurel Street, and is used by the Department of Botany and Horticulture. It is one of the most thoroughly constructed and artistically designed buildings on the grounds. The ground plan is 52x64 feet. It is basement, two stories, and attic in height. The basement, which is composed of Pleasant Valley red sandstone, stands high above grade line and gives excellent rooms for grafting, experimental work, and the storing of implements. The first story of the building has a ceiling height of fourteen feet and is planned to contain one large lecture-room, office, assistant's office, herbarium, and other small rooms for experimental work. The second floor is arranged for a large museum with octagon ceiling; also private laboratories as well as plant, seed, and apparatus rooms. The attic is floored and used for storage of plants and seeds. The superstructure of the building is composed of Boulder pressed brick trimmed with Pleasant Valley red sandstone rubbed to a smooth finish and set flush with the brick work. The general character of the building is after the Romanesque style of architecture, the details, including the moulding and carving, being carried out after the Renaissance. This gives the building a character of solidity, yet with sufficient grace of outline and trimming to relieve the too massive appearance generally characteristic of Renaissance design. The building is specially designed to characterize the work of this department, there being incorporated in the carving and details designs emblematic of the purposes of the building. The roof is heavily trussed and covered with slate. The building is heated throughout by the best improved system of hot water. The rooms are thoroughly ventilated by modern means and much care has been taken to obtain a thorough sanitary system of plumbing and sewerage. The trimmings throughout are of butternut, finished in the natural wood. The hardware is of solid bronze.

Greenhouses and Forcing-house—The new greenhouse recently completed is one wing of a plan which contemplates the addition, at some future time, of a palm-house, and a second wing similar to the one built. Its construction is such that the other parts can be added at any time.

The structure is 25x50 feet and consists of a wrought-iron frame securely bolted to cast sills which cap, and are supported by, brick walls rising from a stone foundation. The frame carries the heating pipes and also the shafting from the self-locking ventilating machines. The glazing strips are of clear Gulf cypress, fitted to special castings at either end, and firmly fastened to iron purlins. The house is provided with non-freezing gutters and is glazed with the best greenhouse glass. The benches are of iron, with porous tile bottoms and cypress sides. Two lines of sash at the sides and two at the ridge are connected with geared machines which give perfect control over ventilation.

The frame of the house possesses strength, and at the same time offers little obstruction to light. In plan and details the structure is modern; embracing the best that is known in greenhouse construction. It was purchased of the Lord & Burnham Company, of New York City.

In addition to this greenhouse there has been added a forcing-house, 20x50 feet, made of cypress frame resting upon brick walls, and a glass connection between the forcing-house and the laboratory which is 14x14 feet. In this latter house the sides are carried perpendicular to the height of nine feet, affording space for tall plants.

Orchards and Grounds—The orchards and grounds are carefully laid out and planted to ornamental shrubs and trees. Here are the plantation of forest-trees, the kitchen garden, with its many varieties of vegetables and small fruits, hot-beds, and cold-frames.

Agricultural Hall—This is a very attractive building, constructed of red stone and brick. The entire upper floor is devoted to a spacious hall for class-room work. The first floor is divided into a hallway and four large, comfortable rooms. Here are found the office of the Professor of Agriculture, laboratory, agricultural museum, and seed-room. The basement has four apartments which are used for heating apparatus and storage.

Farm and Stock—The Farm contains 240 acres, nearly all under cultivation.

The live stock consists of Clydesdale grade draft horses, Short-Horn and Jersey cattle, Shropshire sheep, and Berkshire hogs. Other representative breeds of stock will be added as rapidly as means and accommodations will admit.

Mechanical Engineering Building—This building includes two large main portions, two stories high, and an ell one story high.

The first story of the north front of the building is occupied as follows: The east end contains the office of the professor in charge, and adjoining it is the tool room supplied with a good assortment of small tools, such as taps, dies, drills, reamers, gauges, and milling machine cutters. Here is kept the supply of nails, screws, belting, etc.

The machine shop is also on this floor and occupies the middle portion of the building. It is supplied with a fine assortment of tools for working the metals. Around the room are benches, with iron vises fitted for the work in chipping and filing.

There are in this room two 16-inch engine lathes, one 17-inch engine lathe, one 13-inch engine lathe, one speed lathe, one 20-inch drill press, one 6-foot planer, one 15-inch shaper, one universal milling machine with gear-cutting attachments, a grindstone, an emery wheel stand carrying two wheels, and a universal tool and cutter grinder. An extra bench, standing near the middle of the room, is fitted with a pipe vise and furnished with the necessary tools for instruction in pipe fitting.

The testing laboratory is also in this room. It is supplied with a 50,000-pound testing machine, Prony brake, steam pumps, gauges, thermometers, etc.

At the west end of this story is a well-lighted classroom used for instruction in Mechanical Engineering. This room contains a number of good models. The upper story of this portion of the building is devoted to bench and machine work in wood. There are sixty benches, each supplied with a complete set of carpenter's tools. The other appliances are, one 24-inch surface planer, one 30-inch band saw, one scroll saw, one double circular saw bench, one foot mortiser, one steam glue heater, and eight wood-turning lathes.

In the lower story of the east main portion of the building is the engine-room containing the 50-horsepower Corliss engine which furnishes power for the entire plant. This engine is supplied with indicator attachments. The students are given an opportunity to take and work up indicator cards. For this purpose the department has a pair of Crosby indicators. A dead weight gauge tester affords a means of correcting steam gauges.

Opposite the engine-room is the wash-room, with lockers for the use of 100 students.

The drawing-room, which occupies the upper part of this building, has accommodations for fifty students. In the ell portion of the building are found the coal house, blacksmith shop, and foundry.

The blacksmith shop is fitted up in a most convenient and modern form. There are 25 forges, all attached to a system of pipes for supplying a blast to the fires and for taking the gases from the forges. Each forge is supplied with a complete set of smith tools. There are extra tools, sledges, vises, and a pair of metal shears. The store closets for iron and steel are in this room.

The foundry is at the west end of the ell and has very complete appointments. It contains a 20-inch cupola, a brass furnace, a core oven, and about 200 flasks of various kinds and sizes. It is well supplied with the necessary bench and floor tools, ladles, shanks, and skimmers. Most of the equipment for this room, including the cupola and brass furnace, was made by the students.

Mechanical Engineering Laboratory—The building is situated directly south of the present Mechanical Engineering Building, and is known as the Mechanical Engineering Laboratory. It is 40 feet wide and 60 feet long, and built of brick.

The object of the work of the Laboratory is to give the advanced students an opportunity to make investigations of the physical properties of materials of construction entering into buildings, machinery, and other structures; and also to make tests and examinations of different kinds of boilers, engines, motors, pumps, and all kinds of mechanical appliances which may be obtained for the use of the department. The work does not interfere in the least with that of any other department, but is an added help for the department for which it is designed. Nor does it disarrange the plans of the Mechanical Department, but enables the work to be extended in a most satisfactory manner. A number of pieces of apparatus have been given by generous parties for carrying on this work.

As a great deal of the work of investigation is along the line of steam engineering, the new boiler of 80-horsepower is placed inside the Laboratory, in order to have the steam needed close at hand. The boiler is so arranged as to allow of its being subjected to regular commercial and scientific tests, and students are instructed how to find the horsepower, how to test for strength, how to test the quality and quantity of the steam furnished by the boiler, and to obtain its efficiency.

To test the quality of the steam, that is, to find out the amount of moisture in it, there are on hand four different styles of calorimeters, a Carpenter throttling calorimeter, a Carpenter continuous calorimeter, and a Barrus calorimeter. There is also a calorimeter devised and made by the students. In connection with these calorimeters, there are thirteen thermometers of a high degree of accuracy. These are cylindrical bulb thermometers. There are also several high-grade steam pipe thermometers, thermometers designed to get the temperature of steam flowing through pipes.

A draft gauge is also provided for measuring the draft of the smoke stack in connection with the boiler trials. Provision is also made to secure samples of the chimney gases for chemical analysis, in order to assist in ascertaining the thoroughness of combustion of the fuel. The temperature of the gases may also be taken with a suitable instrument which is provided.

A large water tank and weighing scales are provided, so that the amount of water used and turned into steam may be ascertained while the trial is being made. Three steam engines are in the building. One is of 12-horsepower, made by the Denver Engineering Company; one of 6-horsepower, another of 5-horsepower; the latter was made by the students. Upon these engines brakes are placed, so that a load on the engine may be accurately measured. The students are instructed how to set eccentrics and valves, and how to ascertain the horsepower of the engine. For this latter purpose there are on hand two Crosby steam engine indicators, with five springs each, for varying pressures of steam. Brumbo pulleys are ready for use with the indicators and are used to make the stroke of the indicators proportionate to the stroke of the engine. There is also a reductor at hand, for the same purpose, made by Schaeffer & Budenburg, New York.

A United States Observatory barometer, made by Henry J. Green, of Brooklyn, is in the building, to be used in connection with the boiler, engine, and pressure tests of various kinds. The airbrake appliance, given to the department by the Westinghouse Airbrake Company, is in this building. It consists of a complete outfit for engine, tender and one car, including all the tanks, valves, and engineer's triple valve. Besides using this for the purpose of investigation, the air pump attached is used to furnish air to other kinds of pneumatic machinery. There are micrometers and verniers ready for use, which will measure in thousandths of an inch. An ingenious water meter registers the number of gallons of water passing through a pipe in a given time. This is used in connection with the hydraulic work. The planimeter is used for measuring the area of diagrams drawn upon paper, and is used in connection with the figuring out of test diagrams of various kinds. It is of the Amsler design. Revolution counters are used in connection with the engine and motor tests.

Two steam pumps have been donated for the work; one made by George F. Blake, of New York, the other by M. F. Davidson, of Brooklyn, N. Y. The setting of valves and the testing of the efficiency of these pumps are features of the work. Nine steam gauges have been presented by different makers, which give a good variety upon which to make investigations. For testing gauges, two first-class machines are ready; one for testing pressure gauges, the other for testing vacuum gauges.

Two sizes of the Hancock inspirator furnish means of studying this highly interesting instrument. Tables are arranged at convenient intervals in the room at which the students are first required to make their theoretical and mathematical calculations, and afterwards compare the practical results of the tests with these calculations. Tabulated results of all tests are made upon blanks of suitable form.

Civil and Irrigation Engineering—The building formerly known as the Dormitory has been remodeled and fitted up for the use of the Department of Civil and Irrigation Engineering.

The main class-room is on the second floor. It has seats for a class of forty-six students. The windows are fitted with shutters, in order that the solar projection apparatus may be used for illustration of topics under instruction. The table is fitted with water-tank and pneumatic troughs. A second room on the same floor is used for storage of the instruments used in class instruction and as a museum of irrigation and engineering appliances. On the first floor are the offices, and the room for carrying on the work of the Section in the Experiment Station.

There is also a draughting-room for the Engineering students.

The basement is taken up with the physical and the hydraulic laboratories, one-half of the area being used for each. In the physical laboratory are firm tables provided for the students, with place for each student, where the apparatus may be left from one day to another without disturbance. A concrete floor, to lessen injurious vibration, is used to make the room available for the use of delicate instruments.

The hydraulic laboratory has tanks and a large set of suspended scales, weighing 5,000, for testing the flow of water through orifices and over weirs. Here also is placed the Pelton water motor and the cement-testing instrument, together with some other portions of the equipment, pipes, pressure-gauges, etc., for experimentation. The experiments on measuring water in streams are carried on in the adjacent streams.

In Physics, the Department has an excellent working equipment in all branches, the equipment having been selected for its usefulness, and for its adaptability to experimentation as well as for illustration. It includes a set of United States Standard Weights and Measures, prepared for the College under act of Congress; micrometers; balances; spherometers; gauges; gyroscope; air-pump and accessories; thermometers; mirrors and lenses; projecting lantern; electrical machines; dynamo; batteries; standard B. A. ohm; Queen 100,000-ohm resistance coil; astatic, sine, tangent, and d'Arsonval galvanometer; Edelmann ohmmeter; quadrant; electrometer; voltmeters; telephones; standard cells; and much minor equipment.

For use in Engineering and Hydraulics, it has Colorado, Lallie and Fteley current meters, the latter with an electrical recording attachment; a Darcy-Pitot tube;

registers to record the rise and fall of water, one imported from Paris to record, electrically, at a distance of some miles; large scales and tanks for experimentation on the flow of water through orifices and over weirs, and to study the laws of flow; pressure gauges; photographs and plans of hydraulic structures; and a collection of slides for the lantern made from negatives taken in this and other countries. A water-motor, presented to the Department by the Pelton Water Wheel Co., a water-meter presented by the Equitable Meter Co., and a centrifugal pump add to the equipment.

In Engineering instruments, it has Gurley and Randolph compasses; a Foster, two Gurley, a Young, and a Buff and Berger transits; five levels, including makes of Randolph, Gurley and Buff and Berger; plane table of Keuffel and Esser; leveling rods of various patterns; chains and tapes for land surveying and for engineers' use; hand-level; planimeter for determining areas; apparatus for photographic surveying, odometer, etc.

A Fairbanks cement-tester, with full set of moulds, gives the means of testing the strength of cements to 1,000 pounds per square inch. A large 50,000-pound testing-machine gives the opportunity to test other materials within its limits.

A complete set of meteorological instruments, many of them imported, is in daily use. This set includes barometers, thermometers, psychrometers, anemometers, statoscope, pluviometers, actinometers, solar and terrestrial thermometers, evaporation tanks, soil thermometers, etc.

Military Science and Tactics—This department has two hundred and fifty cadet rifles and two 3-inch rifled field pieces from the War Department. Each year there is issued a supply of ammunition for both branches of service, in order to give training in infantry skirmish drill, target practice, and artillery firing.

Domestic Science—The Department of Domestic Science has eligible and serviceable quarters in the building formerly occupied by the Department of Botany and

Horticulture. The accommodations and appliances are ample for class-room and laboratory work in everything connected with household management.

Scientific and Technical Apparatus—All departments of science have elaborate, modern, and costly equipment. Fine cabinets of specimens are to be found in the Museum. Laboratory work in agriculture and dairying, horticulture and botany, chemistry, physics, geology and mineralogy, comparative anatomy, and entomology is done with the aid of apparatus representing a cost of $25,000.

The departments of Mechanical Engineering and Civil and Irrigation Engineering have a combined equipment worth over $24,000.

Value of College Property—The property of The State Agricultural College is carefully inventoried in December of each year. The total valuation for each of seven years is given:

1891	$144,568.98
1892	176,600.26
1893	187,847.53
1894	197,633.76
1895	207,411.83
1896	212,699.52
1897	232,667.62
1898	253,288.73

The sums named do not represent any portion of the Experiment Station property which, in December, 1898, was inventoried at $25,627.58.

General Information.

Registration—All persons coming to Fort Collins for the purpose of entering the College are required to register at once. Students are registered once each college-year and are classified at the beginning of each of the three terms into which the college-year is divided. Any person registered as a student comes under the provisions of the rule relating to "*Leaving College*" for the whole college-year in which such registration occurs.

Admission—The College admits students of both sexes, provided they pass the required examination or, in lieu thereof, present satisfactory certificates of proficiency given by city, and county school superintendents or others competent to sign such evidences of scholarship; and provided they are *at least fifteen years of age.*

The work of the Preparatory year is, in part, a review of the common-school branches. In this year attention is given to American and English prose and verse, Drawing, Elocution, Word Analysis, and Composition.

No one will be admitted to this class who has not completed the work of the seventh-year grade of the public schools. The College management does not seek students for this class; it is made a part of the College course for the reason that there are persons, having limited educational advantages at home, who can enter upon its work with profit to themselves and to the detriment of no one else. The requirements for admission to the Sub-Freshman class are those usually required for entrance to the best high schools. In no instance will this standard be lowered. Candidates for Freshman class standing must show a scholarship fully equivalent to that of one well-fitted to enter upon the work of the tenth-year grade of the public school or the second-year grade of a good high school.

Candidates for advanced classes or work must be examined on all previous work, or bring certificates of standing from schools having an equivalent grade of work.

Candidates for admission should appear for examination on the date announced in the calendar of exercises, preferably at the opening of the College year. Those entering later, or proposing to take advanced work, must be prepared to take a more thorough and prolonged series of examinations.

Regular and Special Courses—Unless there are strong and excellent reasons for it, students will not be allowed to take a special course of study; and, in case it is allowed, the student must show that he is well-qualified to pursue the studies selected, by passing such examinations as the Faculty may assign. No student will be allowed to change his course during the progress of a term, or will he be allowed to drop a study unless by permission of the Faculty.

All applications for special courses of study must be made to the Chairman of the Committee on Examinations, by mail or otherwise, at least two days before the opening of the term. Except under unusual circumstances, it will be useless for any person to apply for a special course of study involving less work than is required of the students in the regular courses.

Grades—Each student is expected to maintain a grade of 65, on a scale of 100 as perfect. A student is graded as passed in any study, or branch of manual practice, when the average of his daily progress and his term examination equals 65, on a scale of 100 as perfect.

Failure may be made up, and tested by special examination, or the study may be again taken up with a subsequent class.

Discipline—The discipline of the College is administered by the Faculty according to a system of demerits.

Misconduct, in or out of classes, unexcused absences from any required College exercises, meddling with College property, etc., receive one or more demerits, as the case may seem to require. Parents of students who receive ten demerits will be notified of the students' misconduct by the President; twelve demerits suspend, while fifteen expel the student from the College.

Leaving College—A student will not be allowed to absent himself from his classes or any scheduled work, or to leave College in term time, without permission of the President of the Faculty; otherwise the student will be liable to *suspension or expulsion.* Temporary leave of absence can be granted by the President, or the officer in charge during his absence. Final separation from the College must be acted upon by the Faculty.

Labor—Labor, two hours each school day, is required of all students not excused for physical disability. This labor (see Course of Study) is performed on the farm, or in the garden, in the shops and laboratories, in field work, in irrigation, and in surveying and engineering.

Degrees—Upon those who complete the work of any of the four courses in a satisfactory manner, The State Board of Agriculture, upon recommendation of the Faculty of Instruction, confers the degree of Bachelor of Science.

The degree of Master of Science will be conferred upon all graduates of the College who pursue thoroughly, some line of work after graduation, and who submit an acceptable thesis. A selection of work, acceptable to the Faculty, must be made by the applicant at least one year in advance of the granting of this degree.

The degrees of Civil Engineer and Mechanical Engineer will be conferred upon post-graduate students and others who, by reason of satisfactory work, are entitled to receive them.

Students who complete the work of the Commercial Course will receive a Diploma.

Expenses—All College fees were abolished in January, 1891. TUITION IN ALL THE REGULAR AND SPECIAL CLASSES OF THE COLLEGE IS FREE. There is no charge of any kind for material used in the laboratory work or for books taken from the College Library.

A boarding club, the membership being about forty, is organized and managed by male students. The management of this club is so successful and economical, that it suggests the desirability of other organizations of the same character. The yearly expenses of one of these club students may be summarized as follows:

Club board, 40 weeks, at $2.25 per week	$ 90.00
Room rent, 40 weeks, at .75 per week	30.00
Laundry, 40 weeks, at .50 per week	20.00
Cadet uniform	12.00
Books and stationery	8.00
Incidentals	10.00
Total	$170.00

Students of either sex can secure lodging and board in private families at from $3.50 to $4 per week.

Many students who "*bach*" bring their yearly expenses at College within $125. Other students bring a small edition of home life with them. Brothers and sisters rent a small cottage and begin housekeeping on a modest scale, and with an equitable division of labor. It is rare in such cases that the monthly expense to each member of the little household exceeds $8.

There are numerous ways by which students of either sex may materially lessen their College expenses. An industrious girl, one who really means business, can find desirable quarters in some good home and make her house service render her the price of her board and lodging.

There is work for a young man—work which will bring him the wherewith to meet a not inconsiderable part of his necessary expenses—if he is willing to wear a laborer's clothes and soil his hands in doing something useful.

The College is an employer of student labor to a limited extent. In the year just closed our students received $1,029.41 in payment for work done on the College grounds. It is the policy of those in charge of the different forms of College work to favor students whenever labor service is needed. The best qualified and most willing have the preference if more service is offered than is required.

Students are counseled to a provident use of their money. There are those who spend money thoughtlessly and uselessly, but their number is not considerable. The surroundings of the College are such as favor the practice of economy. The pleasures in which most students indulge are simple, harmless, and inexpensive. The student's expense account is not forced beyond proper limits by reason of customs in vogue among his fellow-students or by attractions of questionable repute brought within reach of his College life.

State Experiment Stations—The Central Station is located at the College, Fort Collins, Larimer County, Colorado. Four Sub-Stations are provided for, two of which are in operation. They are the Arkansas Valley Station, at Rocky Ford, Otero County; and the Rain-Belt Station, at Cheyenne Wells, Cheyenne County. The Divide Station, at Monument, El Paso County, and the San Luis Valley Station, at Monte Vista, Rio Grande County, have been discontinued temporarily.

This department was created in acceptance of the conditions of the "Hatch Act," and the work has been arranged in conformity with its provisions.

Bulletins are issued quarterly, or oftener, and reports annually. The former are distributed to those who request them as long as the editions last.

Location and History.

⁂

Location—The State Agricultural College is located in Fort Collins, Colorado, the county seat of Larimer County, which is one of the most prosperous agricultural counties in the State. The town contains 3,000 inhabitants, and is beautifully situated about five miles from the foothills, and in full view of the Long's Peak and many miles of the Snowy Range. Its supply of water is derived from the melting snows of the mountains; its buildings have electric light; and its sidewalks are exclusively made of excellent flag-stone, which is found in large quarries almost at its doors.

The College is at the south side of the town; on either side of the Colorado and Southern Railway are its buildings and the farm. Visitors are always welcome. They find the town accessible by three trains, which arrive daily from Denver and other points. With the advantages of pure water, a beautiful location, electric lights, and steam heat, not much is left to be desired. All the surroundings of the College are favorable to the carrying on of the work which it is its mission to perform.

History—The origin of the State Agricultural College of Colorado, like that of its sister institutions in other States, dates back to an act of Congress, passed July 2, 1862. Therein it is proposed to endow in the several States and Territories, by grants of public lands, "*a college where the leading object shall be, without excluding* *other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

This act gave the College an endowment of 90,000 acres of land.

The Constitution of Colorado gives the College an independent existence and a permanent home in Fort Collins. Three citizens of the town donated to the State *two hundred and forty acres of land* whereon to erect the necessary buildings. In 1877, the Legislature provided for the support of the College by levying a tax of one-tenth of a mill on all the taxable property of the State. At this time "The State Board of Agriculture" was created, and all matters pertaining to the management of the College were placed under its control. The one-tenth mill levy was increased, in 1879, to one-fifth of a mill. The corner-stone of the Main College Building was laid July 29, 1878. This building was completed and ready for occupancy early in the following year.

The Legislature, in addition to providing for the support of the College by the mill tax, before named, has made the following named special appropriations:

Year.	Amount.	For What Purpose.
1881	$ 5,000	College Dormitory
1883	10,000	Mechanical Engineering Building
1889	18,000	Extension of Main Building
1893	6,500	Sewer System
1895	10,000	Additions to Buildings
1899	15,000	Additions to Buildings

The State Experiment Stations are intimately connected with the College, and are under the control of its governing board. The stations, four in number, owe their existence to the acceptance, by the State, of the provisions of the Congressional Act, better known as the "Hatch Act," of 1888. The College receives $15,000 a year from the Treasury of the United States for the performance of the experimental work required of the stations.

The College also receives support from the General Government under the provisions of an Act of Congress, passed August 30, 1890, known as the "Morrill Bill." The first annual payment from this source was $15,000. The act provides that this sum shall be increased $1,000 yearly until it reaches $25,000, when it shall become permanent.

The probable annual revenue of the College, for the fiscal year ending November 30, 1899, and the sources whence it will be derived are herewith shown:

1. Land Income Fund, derived from interest on money received from sales of land donated by the General Government, and rents of leased lands not yet sold, about $8,000.

2. "Hatch Act," support of the United States Experiment Stations, $15,000.*

3. United States Fund, "Morrill Bill," $25,000.

4. Special Fund, derived from sale of stock, farm products, and the like (estimate based upon the average for a number of years)—$1,000.

5. State Tax Fund, one-fifth of a mill on all the taxable property of the State, about $37,000.

Yearly receipts from all sources, given approximately, $86,000.

Prior to 1887, but one course of study was pursued by students. The following-named courses, from which students can make choice, all lead to the degree of Bachelor of Science, save the last named: Agricultural Course, Mechanical Engineering Course, Civil and Irrigation Engineering Course, Ladies' Course, and Commercial Course.

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*No part of this fund is available for College support. It must be used exclusively for meeting expenses connected with the prosecution of experimental work connected with the stations.

The enrollment of students and the number of graduates for each year since the opening of the College, are as follows:

Years.	Males.	Females.	Total.	Graduates.
1880	14	11	25	0
1881	35	22	57	0
1882	49	32	81	0
1883	50	31	81	0
1884	40	37	77	3
1885	50	46	96	6
1886	45	42	87	1
1887	63	42	105	4
1888	71	38	109	4
1889	73	34	107	2
1890	56	18	74	9
1891	77	29	106	3
1892	101	45	146	9
1893	135	44	179	7
1894	142	56	198	7
1895	164	66	230	13
1896	161	71	232	12
1897	223	112	335	11
1898	245	99	344	13
1899	251	94	345	18

The College now comprises the following-named departments: Agriculture, Horticulture and Botany, Chemistry and Geology, Zoölogy and Entomology, Mechanical Engineering, Civil and Irrigation Engineering, Mathematics, Logic and Political Economy, History and Literature, English and Philosophy, Domestic Science, Commercial Course, Military Science, and the Experiment Station.

Provision is made for instruction in Latin, Greek, German, Oratory, and Physical Culture.

The work of the College is carried on in strict conformity with a section of the General Laws of the State, which reads as follows:

“The design of the institution is to afford thorough instruction in agriculture and the natural sciences connected therewith. To effect that object most completely, the institution shall combine physical with intellectual education, *and shall be a high seminary of learning*, in which the graduates of the common school, of both sexes, can commence, pursue, and finish a course, terminating in thorough theoretical and practical instruction in those sciences and arts which bear directly upon *agriculture and kindred industrial pursuits.*"

Calendar of Exercises.

1899-1900.

Entrance Examinations	Monday, September 4, 1899
Registration of Students	Monday, September 4, 1899
Fall Term begins	Tuesday, September 5, 1899
Fall Term closes	Friday, December 1, 1899
Winter Term begins	Monday, December 4, 1899
Holiday Recess begins	Friday, December 22, 1899
Holiday Recess closes	Tuesday, January 2, 1900
Winter Term closes	Friday, March 9, 1900
Spring Term begins	Monday, March 12, 1900
Baccalaureate Address	Sunday, June 2, 1900
State Board of Agriculture meets	Wednesday, June 6, 1900
Commencement Exercises	Thursday, June 7, 1900

Calendar

1899-1900

SEPTEMBER, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER, 1899.

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	....	....	..	....

NOVEMBER, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	....	....

DECEMBER, 1899.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	....	....	....	....	....	....

JANUARY, 1900.

S.	M.	T.	W.	T.	F.	S.
....	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	....	....	...

FEBRUARY, 1900.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	....	....	....

MARCH, 1900.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL, 1900.

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	...	....	....	....	....

MAY, 1900.

S.	M.	T.	W.	T.	F.	S.
....	....	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	....	....

JUNE, 1900.

S.	M.	T.	W.	T.	F.	S.
....	....	....	....	....	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
...	...	....	....	....	....	....

JULY, 1900.

S.	M.	T	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	....	....	....	....

AUGUST, 1900.

S.	M.	T.	W.	T.	F.	S.
...	....	....	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	....

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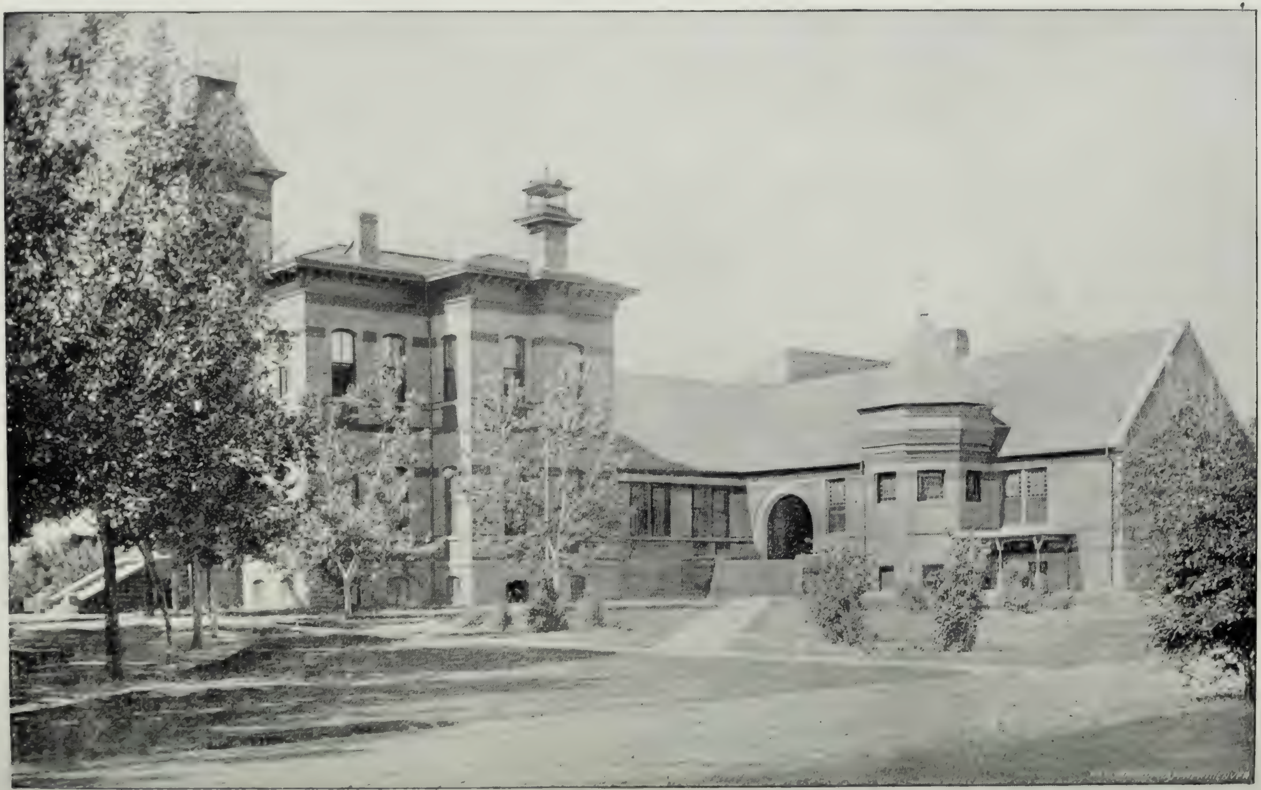
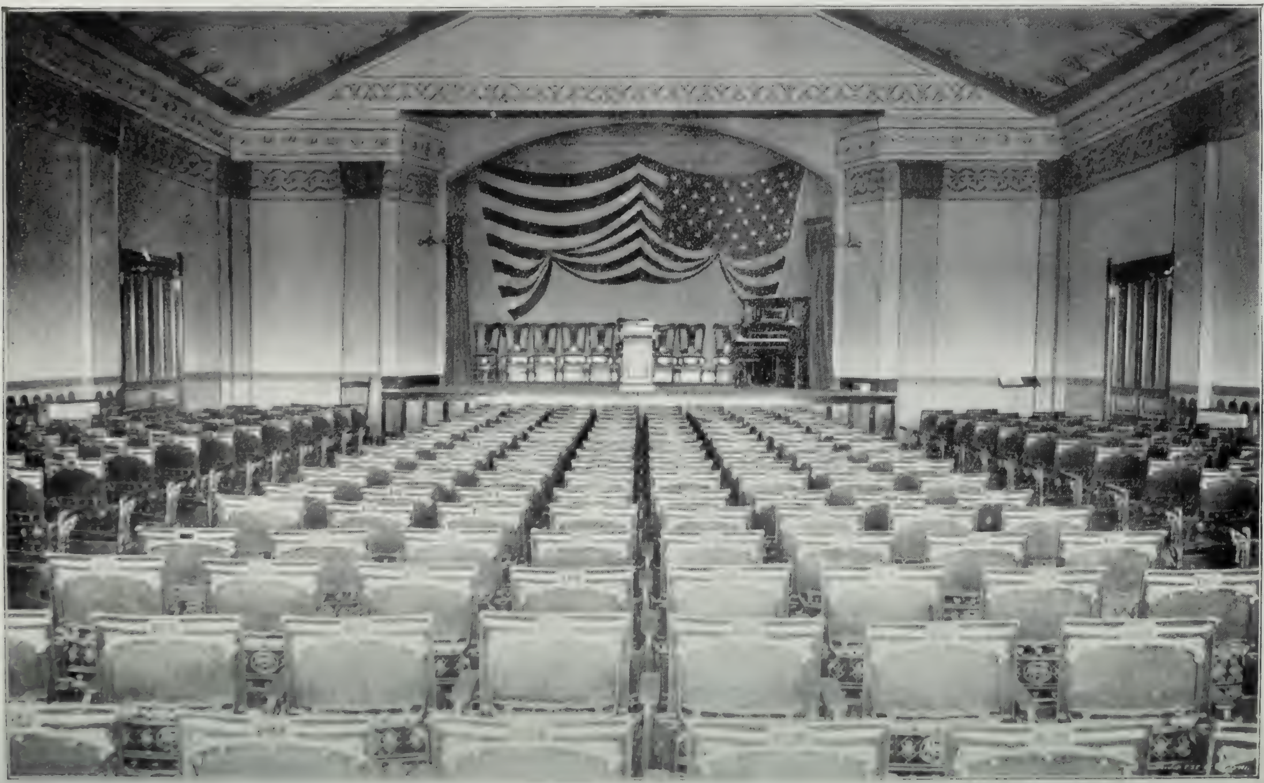
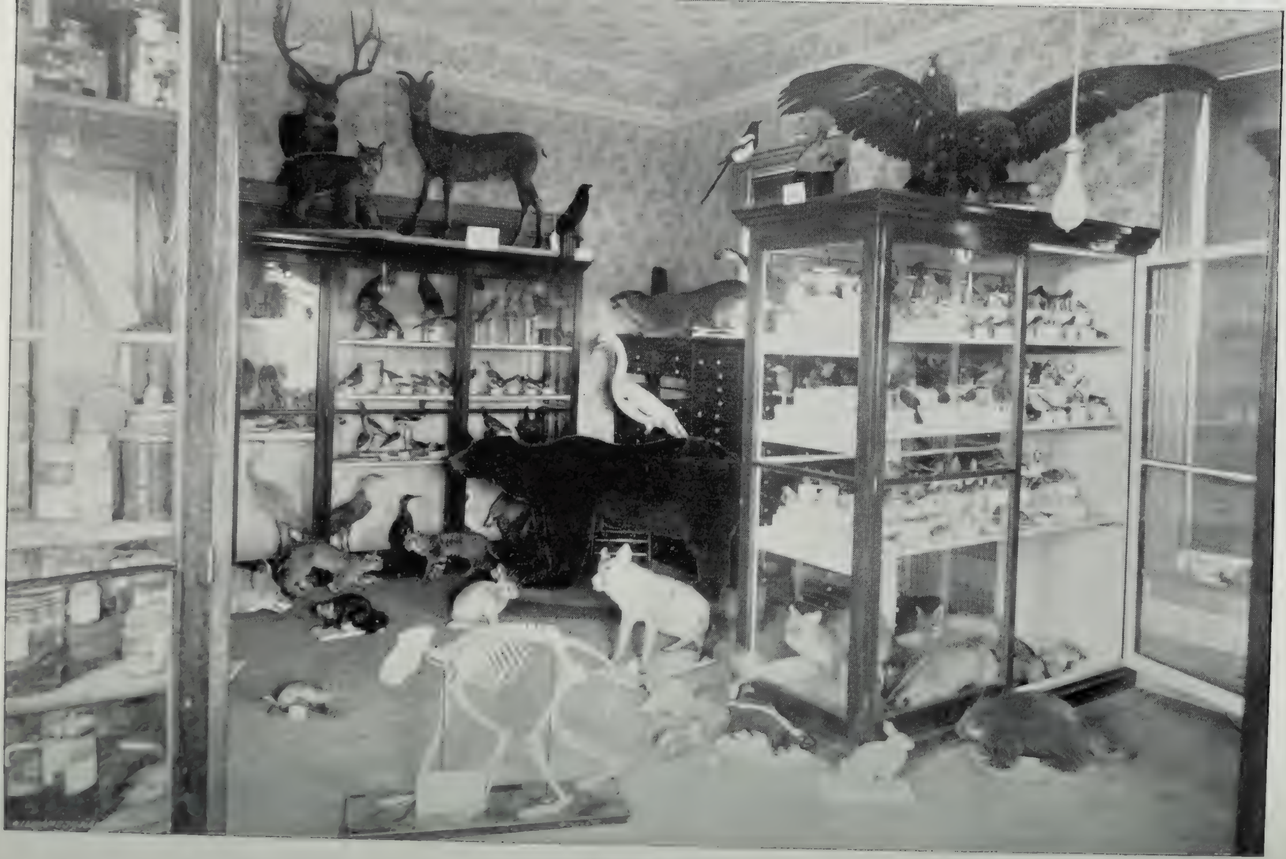


MAIN COLLEGE BUILDING.

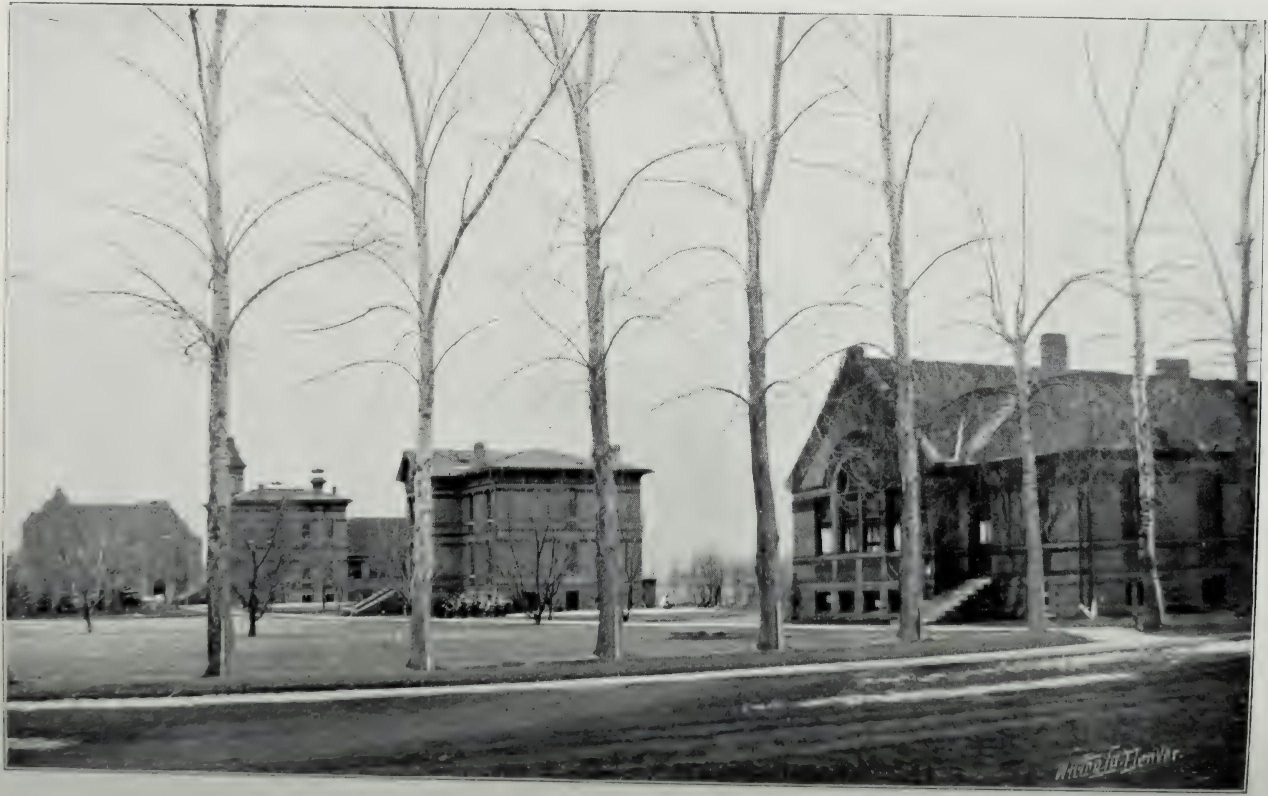


THE CHAPEL. THREE HUNDRED OPERA CHAIRS.

CORNER OF LIBRARY.

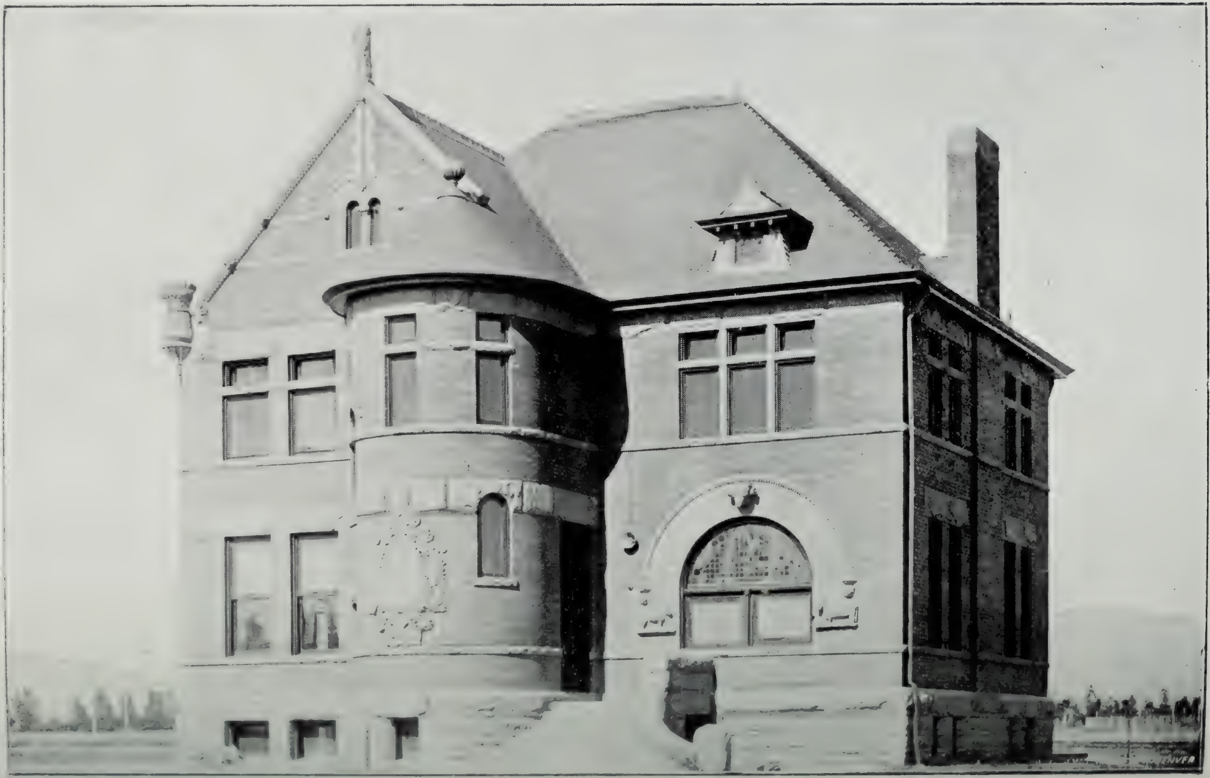


CORNER OF MUSEUM.

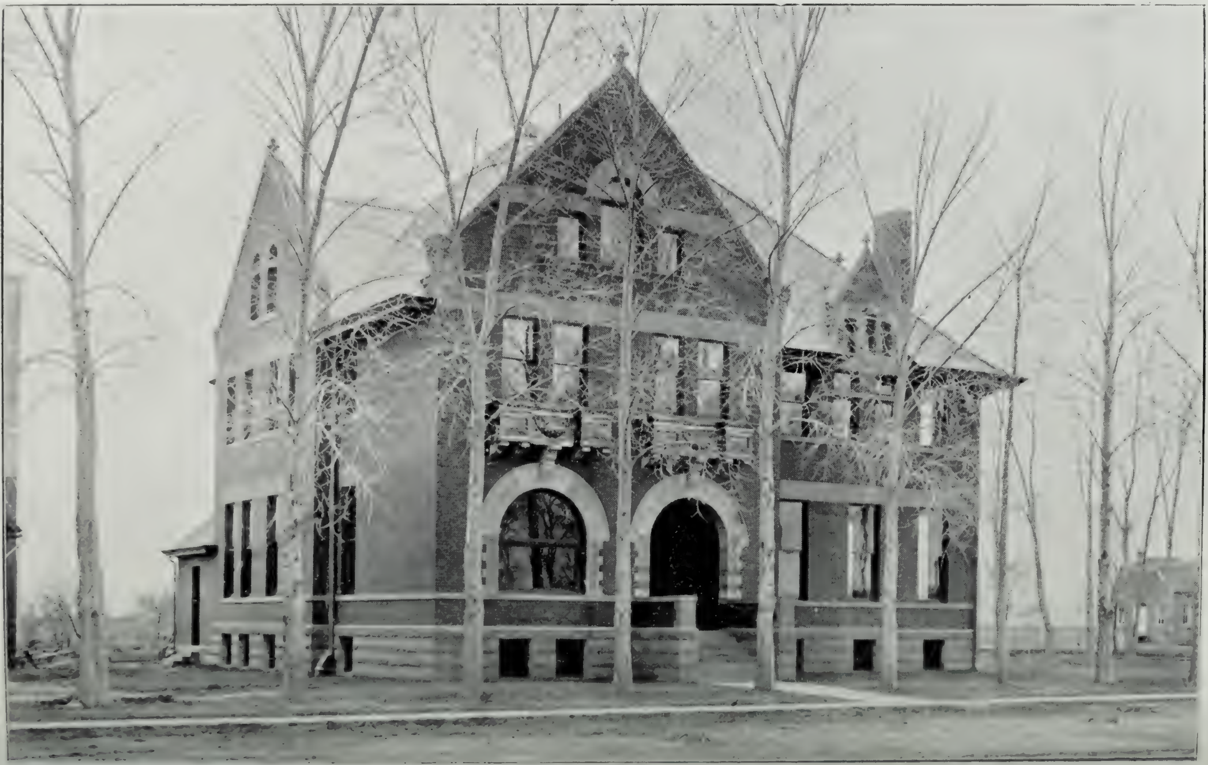


SOME COLLEGE BUILDINGS—EAST FRONT, COLLEGE AVENUE.

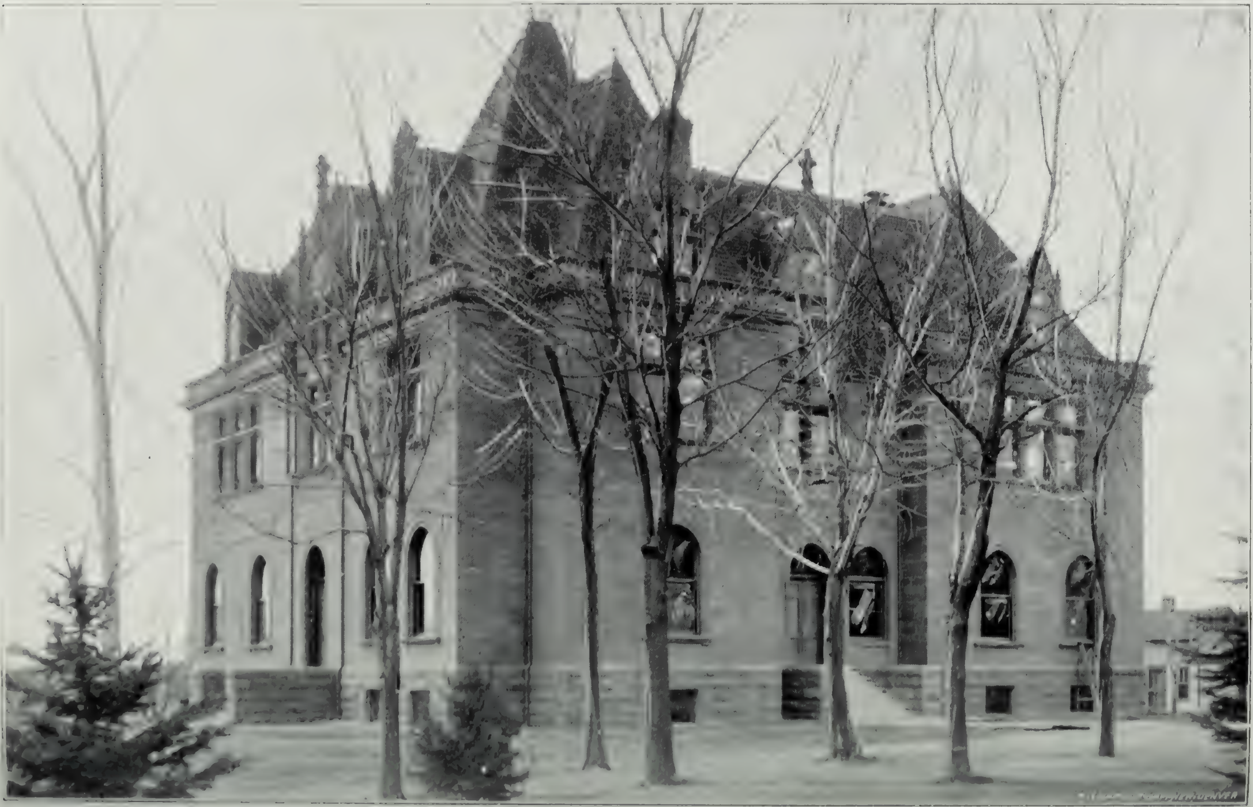
SOME COLLEGE BUILDINGS—NORTH FRONT, LAUREL STREET.



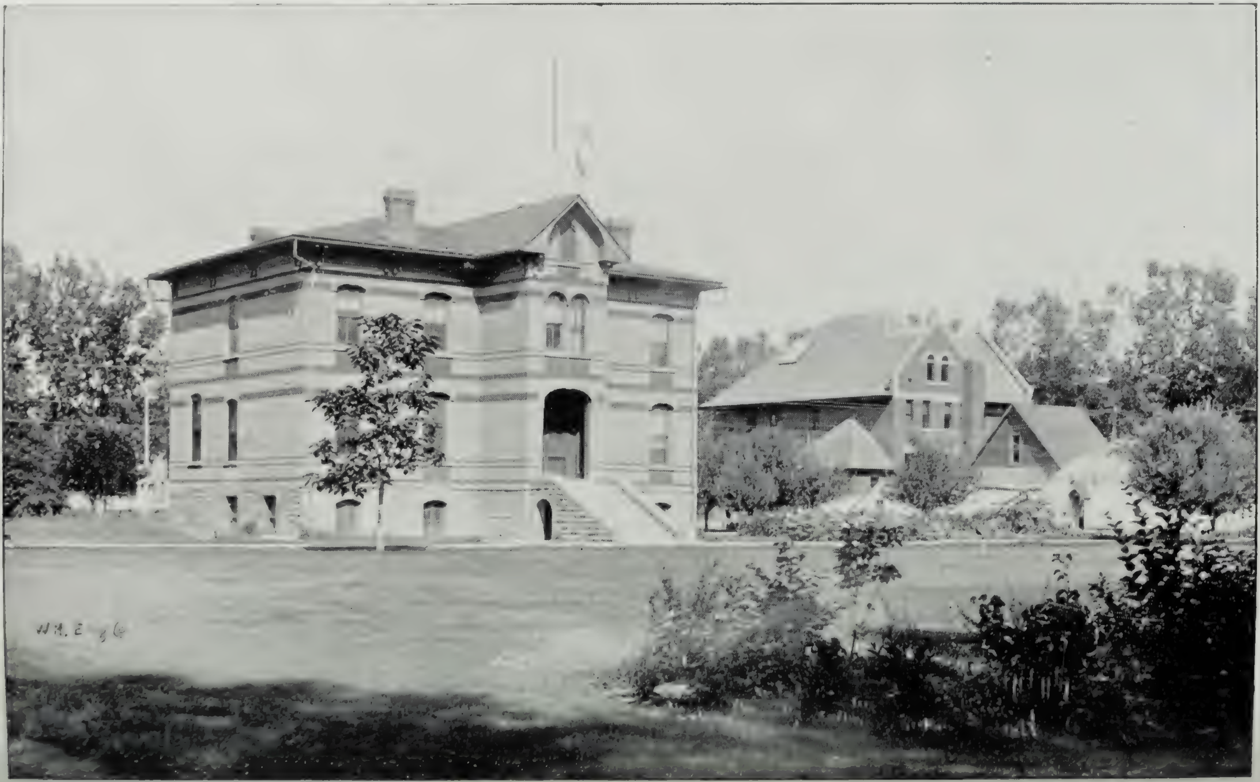
AGRICULTURAL HALL.



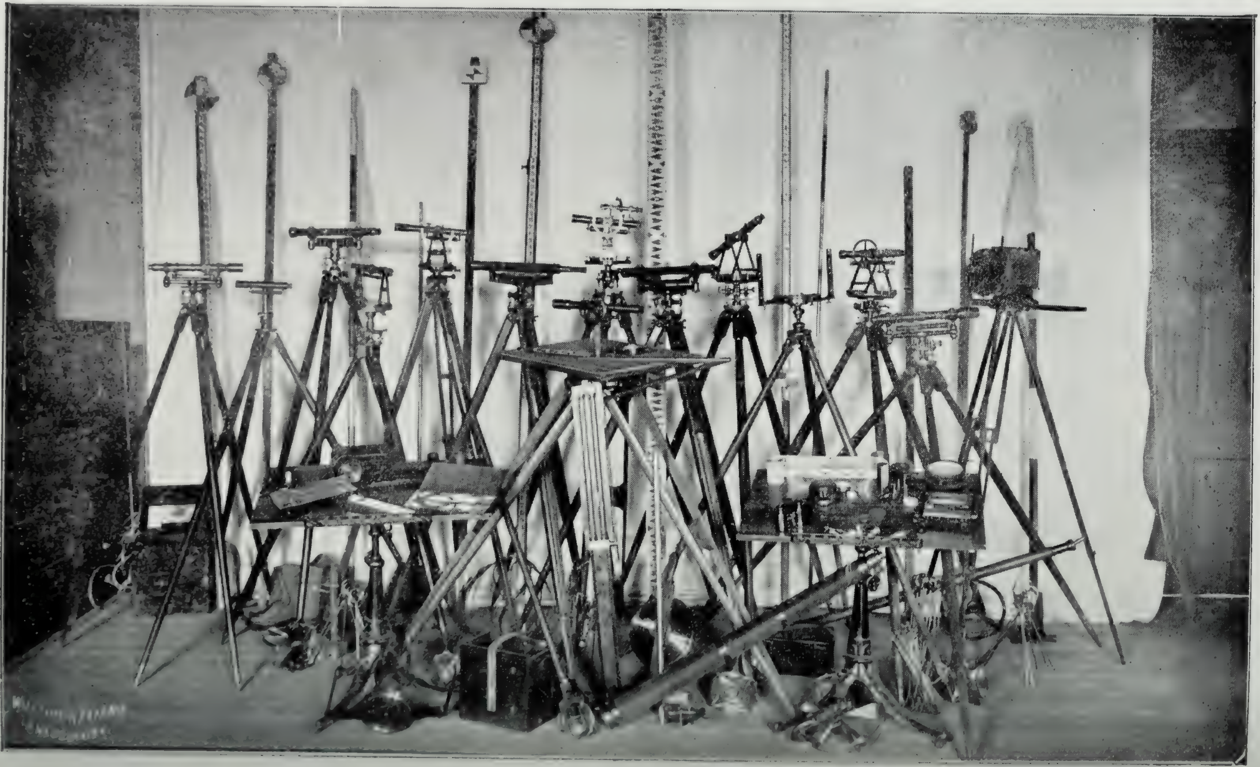
HORTICULTURAL HALL.



CHEMICAL LABORATORY.

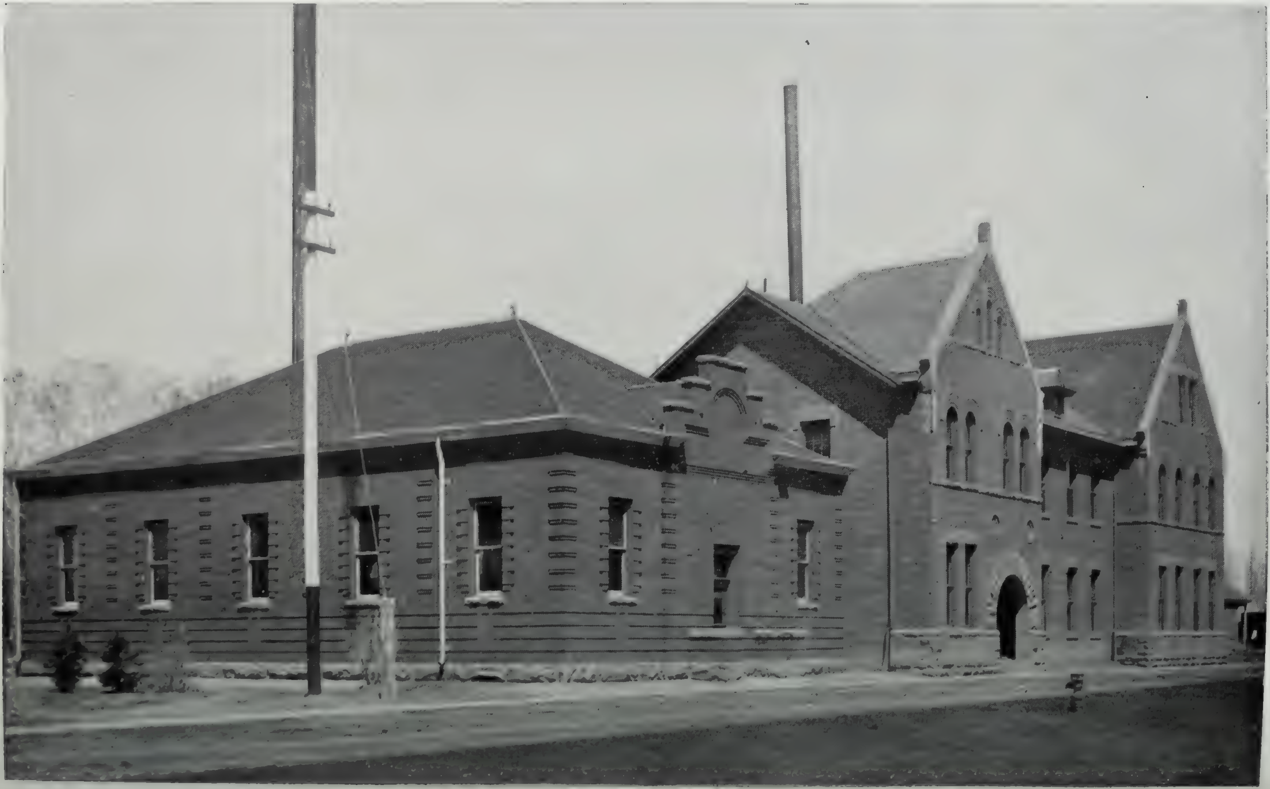


CIVIL AND IRRIGATION ENGINEERING BUILDING

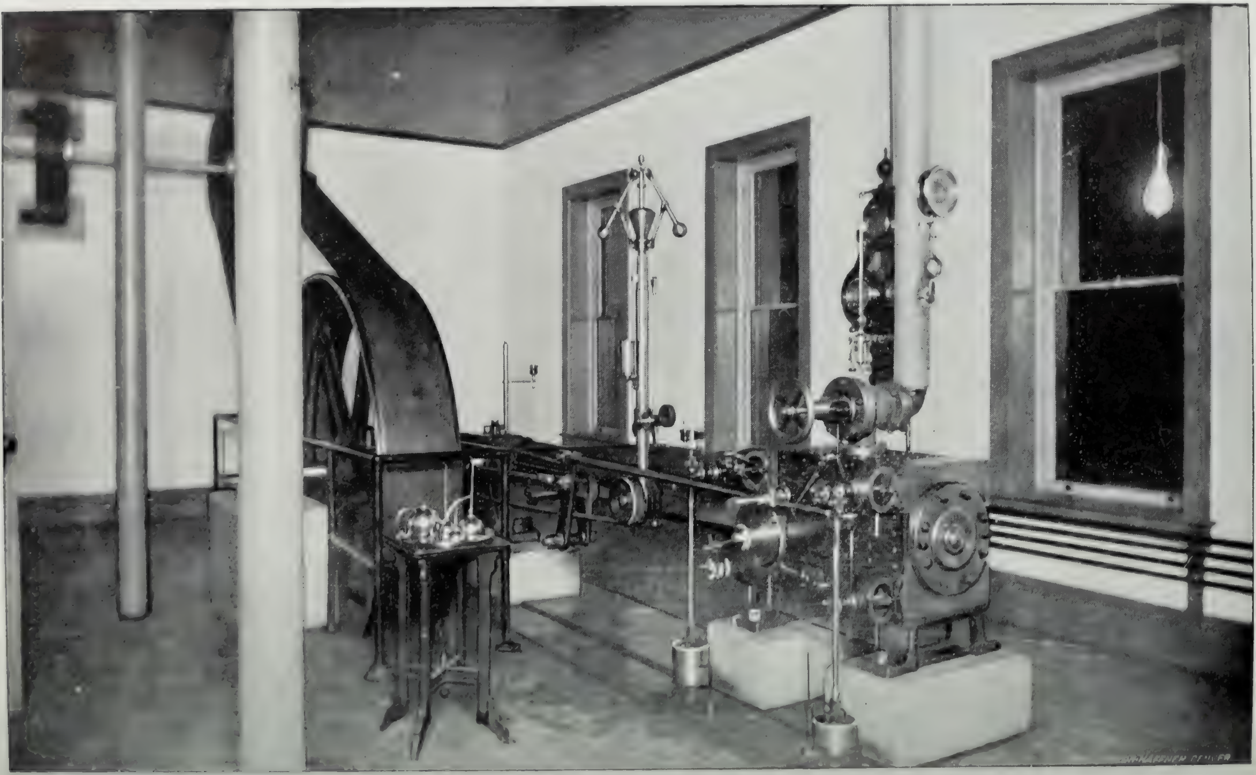


SURVEYING AND ENGINEERING INSTRUMENTS.

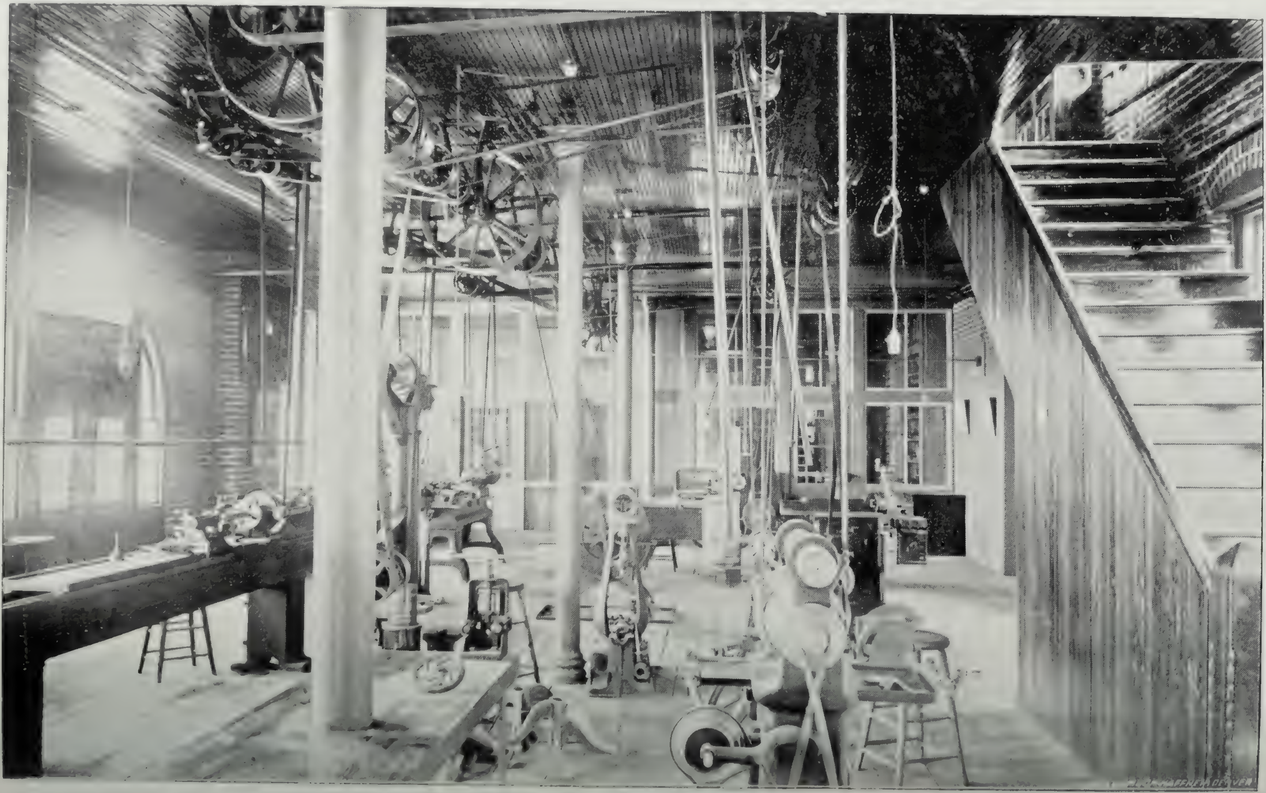
MECHANICAL ENGINEERING BUILDING.



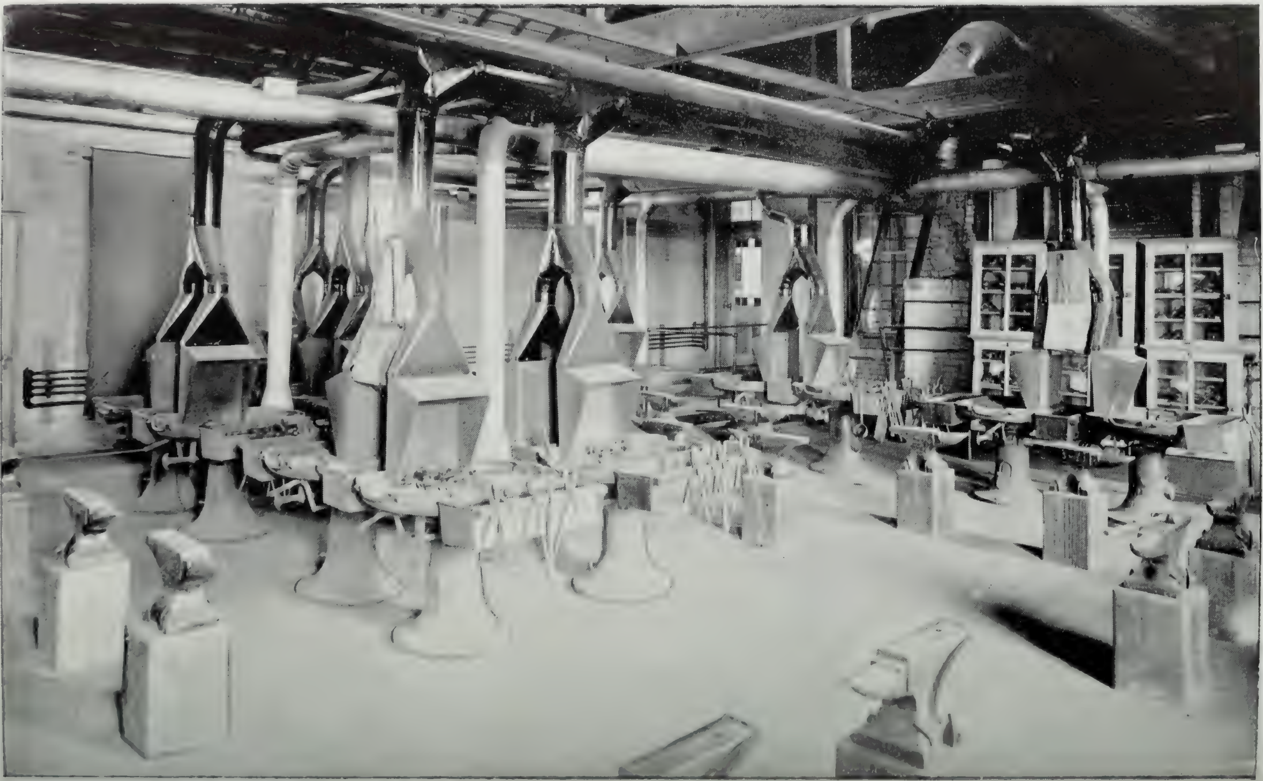
MECHANIC ENGINEERING LABORATORY



ENGINE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.



MACHINE ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.

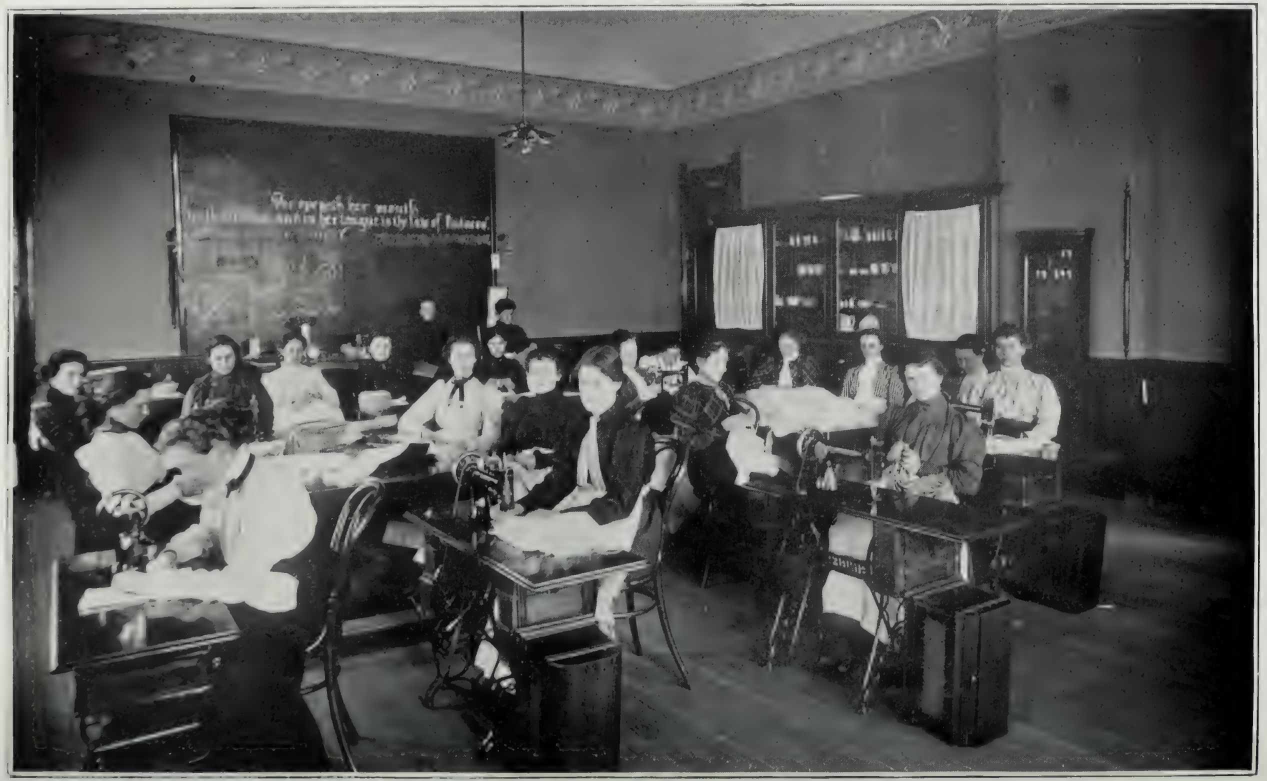


FORGE ROOM, DEPARTMENT OF MECHANICAL ENGINEERING

FOUNDRY ROOM—DEPARTMENT OF MECHANICAL ENGINEERING.

INTERIOR VIEW—COLLEGE GROUNDS.

DOMESTIC SCIENCE BUILDING.



SEWING CLASS—DEPARTMENT OF DOMESTIC SCIENCE.

COOKING CLASS—DEPARTMENT OF DOMESTIC SCIENCE.

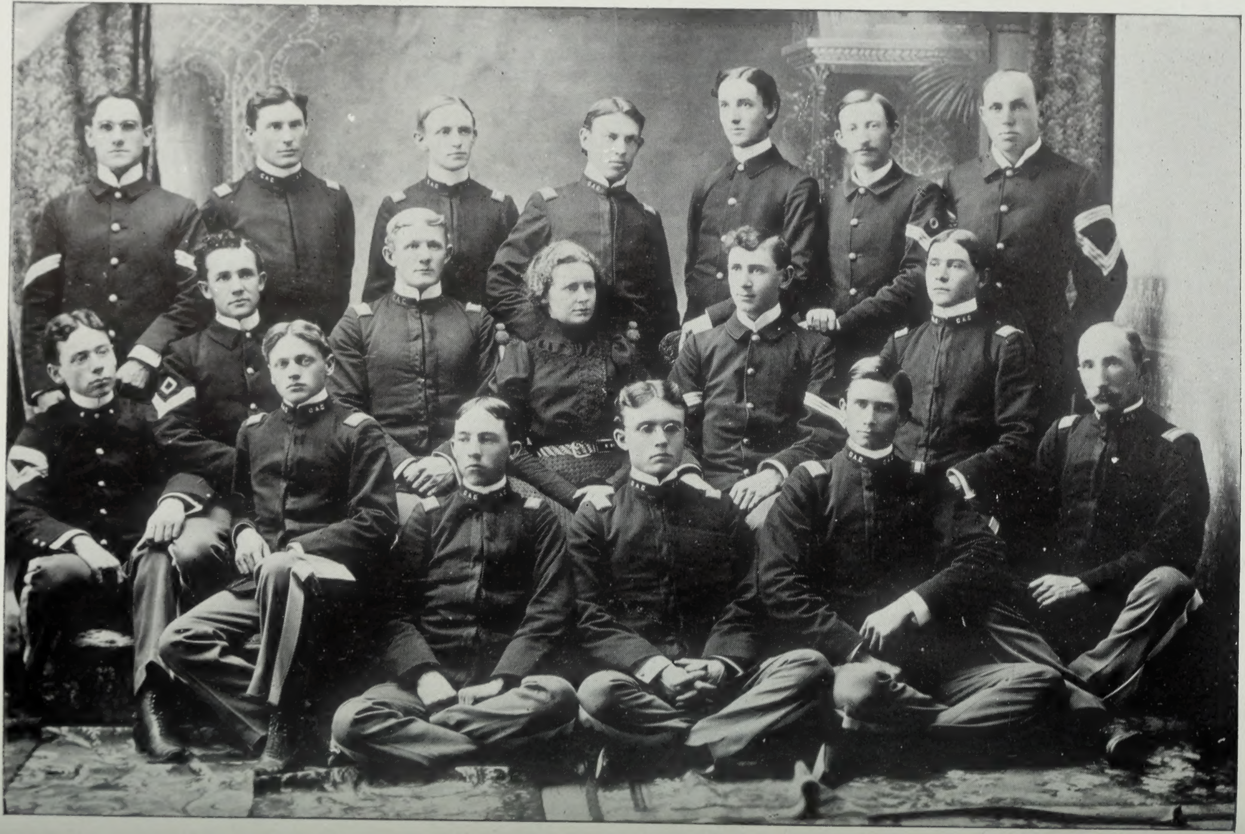
KITCHEN—DEPARTMENT OF DOMESTIC ECONOMY.

MILITARY COMPANIES.

COMMISSIONED OFFICERS.

COLLEGE ORCHESTRA.

COLLEGIAN STAFF 1899.



SENIOR CLASS 1899.

UNIVERSITY OF ILLINOIS-URBANA
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